



universität
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MASTER THESIS

Titel der Master Thesis / Title of the Master's Thesis

“The Geopolitics of Financing Renewable Energy Transition in Ghana”

verfasst von | submitted by

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angestrebter akademischer Grad | in partial fulfilment of the requirements for the degree of
Master of Advanced International Studies (M.A.I.S.)

Wien | Vienna, 2024

Studienkennzahl lt. Studienblatt |
Degree programme code as it appears on the
student record sheet:

UA 992 940

Universitätslehrgang lt. Studienblatt | Degree
programme as it appears on the student
record sheet:

Internationale Studien/ Internationale Studien /
International Studies

Betreut von | Supervisor:

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diplomatische
akademie **wien**

Vienna School of International Studies
École des Hautes Études Internationales de Vienne

ABSTRACT

The political and economic interests as well as the priorities of the World Bank and the African Development Bank in financing Ghana's transition to renewable energy (RE) are important drivers of progression in the matter. The aim of this thesis is to explore the scope of the banks' interests. Unlike the African Development Bank, the World Bank's financing have experienced a shift from the prioritization of RE deployment to non-RE energy sources. This reprioritization in non-RE initiatives and projects in Ghana arose from the energy sector needs and priorities of the country towards addressing its erratic electricity outage challenge, simultaneously mirroring Ghana's inclination to leveraging on its oil and gas resources. For other financiers, China's interests in Ghana's energy sector lay within exploring the opportunities derived significantly from the country's non-RE sub-sector, backed by business and profit maximization motives. Moreover, given the complex and multifaceted nature of RE financing, such donorship from external financiers expose Ghana to both private and public risks which undermine and weaken its economic resilience. Nonetheless, policy makers in Ghana can mitigate such risks through the effective implementation of strategies and interventions such as sovereign guarantees, currency hedging instruments, diversification of RE financing, capacity building and development, financial sustainability, and accountability and transparency.

Key words: Ghana, renewable energy, energy transition, foreign finance, donor interests, risks, risk mitigation

ABSTRAKT

Die politischen und wirtschaftlichen Interessen sowie die Prioritäten der Weltbank und der Afrikanischen Entwicklungsbank bei der Finanzierung des Übergangs zu erneuerbaren Energien (EE) in Ghana sind wichtige Triebkräfte für Fortschritte in dieser Angelegenheit. Das Ziel dieser Arbeit ist es, den Umfang der Interessen der Banken zu untersuchen. Im Gegensatz zur Afrikanischen Entwicklungsbank hat sich die Finanzierung der Weltbank von der Priorisierung des Einsatzes erneuerbarer Energien auf andere Energiequellen verlagert. Diese Neupriorisierung von Initiativen und Projekten, die nicht auf erneuerbare Energien ausgerichtet sind, ergab sich aus den Bedürfnissen und Prioritäten des Energiesektors in Ghana, um das Problem der unregelmäßigen Stromausfälle zu lösen, und spiegelt gleichzeitig Ghanas Neigung wider, seine Öl- und Gasressourcen zu nutzen. Für andere Finanziere lag das Interesse Chinas am Energiesektor Ghanas in der Erkundung der Möglichkeiten, die sich aus dem Nicht-Energie-Subsektor des Landes ergeben, unterstützt durch Geschäfts- und Gewinnmaximierungsmotive. Angesichts der komplexen und vielschichtigen Natur der EE-Finanzierung setzen solche Geldgeber Ghana sowohl privaten als auch öffentlichen Risiken aus, die die wirtschaftliche Widerstandsfähigkeit des Landes untergraben und schwächen. Dennoch können politische Entscheidungsträger in Ghana solche Risiken durch die wirksame Umsetzung von Strategien und Maßnahmen wie staatliche Garantien, Währungsabsicherungsinstrumente, Diversifizierung der EE-Finanzierung, Kapazitätsaufbau und -entwicklung, finanzielle Nachhaltigkeit sowie Rechenschaftspflicht und Transparenz mindern.

Schlüsselwort: Ghana, erneuerbare Energie, Energiewende, ausländische Finanzierung, Geberinteresse, Risiken, Risikominderung.

On my honour as a student of the Diplomatische Akademie Wien, I submit this work in good faith and pledge that I have neither given nor received unauthorized assistance on it.

Fathia Lawal

ACKNOWLEDGMENTS

With heartfelt gratitude, I would like to thank my supervisor, Dr. Katja Kalkschmied, for allowing me to constantly pop by her office and for reviewing my thesis multiple times. Your support, encouragement and constructive feedback propelled me to challenge myself and beat the odds. Special thanks to Rosina Akua Gyamfi, whose encouraging phone calls I recurrently received. I am grateful to Sabeena Lawal and Rukayat Lawal for their love and support which kept me grounded. Lastly, I thank Prince Kwame Gyekye Addo and John Wuntah for their availability and time during the course of my thesis. I could not have done this without you all.

LIST OF ABBREVIATIONS

African Development Bank	AfDB
CBD	China Development Bank
COP	Conference of Parties
Development Finance Institutions	DFIs
Non-Renewable Energy	Non-RE
Renewable Energy	RE
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
UNFCCC	United Nations Framework Convention on Climate Change

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INTRODUCTION

Background

The recurrent global energy crisis and the persistent change in climate, has exacerbated the need for all countries, predominantly developing African countries, to strongly consider rapid and sustainable investments towards transitioning to efficient and clean energy technologies. In the face of many global crises like health, migration, education, agriculture, among others, the challenges posed by shortage of energy stands prominent owing to the fact that the fundamental essentials for human sustenance in modern societies rely on its accessibility (Atuguba & Tuokuu, 2020¹). While energy poverty is a major economic and development setback that confronts a massive portion of the global community, there is a great percentage of the African population that suffers disproportionately from the lack of access to affordable and standard energy. Paradoxically, the continent that is loaded with the means and resources to produce energy sufficiently and independently is the one that suffers from a lack of its supply (Asumadu-Sarkodie & Owusu, 2016²).

African countries, for centuries, have relied heavily on developed states for aid and financial relief. Thus, it comes as no surprise that the majority of countries in Africa depend on green aid and foreign finance from rich countries to power their national development agendas. For instance, at the 26th and 27th Conference of Parties to the United Nations Framework Convention on Climate Change (COP) in 2021 and 2022 respectively, most of the demands made by Africa countries during the High-Level Segment for Heads of State and Governments were centred on calls to rich countries to honour their pledges on their US\$100 billion promise to developing and vulnerable countries (Ridgwell, 2021³; Bower, 2022⁴).

In this current global epoch, transitioning to renewable energy has gained prestigious impetus owing to growing concerns over energy security and accessibility, climate mitigation, adaptation and resilience goals, economic development, and global health concerns. The United Nations' Kyoto Protocol and Paris Agreement set out common climate mitigation,

¹ Raymond A. Atuguba, Francis Xavier Dery Tuokuu. Ghana's renewable energy agenda: Legislative drafting in search of policy paralysis, *Energy Research & Social Science*, Volume 64, 2020, 101453, ISSN 2214-6296, <https://doi.org/10.1016/j.erss.2020.101453>.

² Owusu, P. A., Asumadu-Sarkodie, S., & Dubey, S. (2016). A review of renewable energy sources, sustainability issues and climate change mitigation. *Cogent Engineering*, 3(1). <https://doi.org/10.1080/23311916.2016.1167990>

³ Ridgwell, H. (2021). VOA News. COP26: African Leaders Call on Rich Nations to Meet \$100 Billion Pledge. <https://tinyurl.com/48fdztc9>

⁴ Bower, E. (2022). The Guardian. African Countries Urge Rich Nations to Honour \$100bn Climate Finance Pledge. <https://tinyurl.com/yc87bfs4>

adaptation, and resilience goals for the global community, with distinct obligations and an asymmetric representation of global north and global south countries (Kyoto Protocol to the UNFCCC, 1997⁵, Paris Agreement)⁶. Nonetheless, although there is optimism and enthusiasm to power renewable energy (RE) transition in the Sub-Saharan African region, these countries continue to be confronted by domestic and external geo-political and economic complexities that retard the adoption and implementation of effective and independent RE policies and projects (Bawakyillenuo, 2017)⁷.

The case of Ghana follows a similar trajectory. Ghana's Renewable Energy Master Plan 2019 aspires to achieve a considerable appreciation in its energy portfolio to 1,363.63 MW by 2030, as against 2015's 42.5 MW (Ghana Ministry of Energy, 2019)⁸. The country began utilising novel types of renewable energy around the period of the late 20th century which was largely influenced by the energy crisis worldwide (Pedersen 2022). Although Ghana has since implemented legislations like the Renewable Energy Act 2011 and the Ghana National Energy Policy which are in favour of growing its renewable energy sub-sector, the fact remains that the execution of such policies are stalled and irregular (Pedersen 2022). For example, following the energy supply crisis from 2014 to 2016, Pedersen (2022) points out that renewable sources of energy were introduced into the country's power purchase agreement between the government and Independent Power Producers like the *Takoradi International Company (TICo)*, which was eventually suspended.

The country's renewable energy sub-sector, like other rising renewable energy industries in West Africa, have and continue to largely benefit from investments from foreign donorship and investments to support the execution of numerous power production and supply projects (Pedersen, 2022). Evidently, policy adoption and implementation judgements are substantially impacted and guided by external stakeholders and donors. Since most renewable energy projects are financed by foreign countries to Ghana, these donorship and aid most often come with conditionalities and terms that may affect the sustainable transition to green energy technologies. It has therefore become imperative to understand why multilateral development

⁵ Kyoto Protocol to the United Nations Framework Convention on Climate Change. (1997). United Nations Framework Convention on Climate Change <https://unfccc.int/cop3/resource/docs/cop3/protocol.pdf>

⁶ Paris Agreement. (2015). United Nations Environment Programme <https://wedocs.unep.org/handle/20.500.11822/20830>

⁷ Bawakyillenuo, S. (2017). The Political Economy of Renewable Energy Investment in Ghana. IDS Bulletin, 48(5-6), 1-14. <https://doi.org/10.19088/1968-2017.167>.

⁸ Ghana Ministry of Energy (2019). Ghana Renewable Energy Master Plan. <https://faolex.fao.org/docs/pdf/gha208774.pdf>

banks, foreign corporations, private entities, and states choose to pump enormous amounts of finance into Ghana's energy sector. What is the motivation behind these donorships and investments?

Objective of the Study

The objective of my research is targeted at examining the rising geopolitical dynamic that characterises the financing of renewable energy transition in Ghana. It centres on the political and economic interests of foreign green finance in Ghana's renewable energy sub-sector. In addressing Ghana's RE transition, it is important to underscore the importance and development of the non-RE industry for the country's energy sector. Just like its RE counterpart, the non-RE sub-sector has been an integral part of Ghana's power and energy generation, supply and distribution. The non-RE sub-sector has played a vital role in bridging the gaps and meeting the energy needs of Ghana by serving as a source of power and electricity production as Ghana journeys through its RE transition (Pedersen, 2022). This study shall thus address the interests of foreign green finance in Ghana's RE transition alongside and in comparison, to the non-RE industry. Particularly the study focuses on how the political and economic interests and renewable energy priorities of two prominent multilateral development banks for Ghana's development, the World Bank and the African Development Bank align with the pattern of their project financing, as well as the energy requirements and development goals of Ghana. As foreign green finance is an integral part of Ghana's energy sector development, the objective of this study aims at contributing to the growing scholarship on the political economy of Ghana's renewable energy by offering insights on the priorities and interests of such foreign donorship, the associated risks, and the prospects of de-risking foreign green investments in the country's renewable energy transition. By analysing the risks of official (public) and private financing, this research seeks to ascertain how Ghana can promote and achieve a sustainable renewable energy pathway in the future. Moreso, this research aims to explore the prospects and potential for balancing and de-risking Ghana's foreign financing inflows for a sustainable renewable energy transition which is beneficial in the drive for optimum renewable energy financing for strategic policy decision making.

The study aims to answer the following:

1. What are the political and economic interests of the World Bank and African Development Bank in prioritising the financing of Ghana's RE transition?
2. Do the World Bank and African Development Bank have political and economic interests in financing Ghana's non-renewable energy sub-sector?

3. What are the risks of foreign climate finance to Ghana's sustainable transition to RE?
4. How can the risks of foreign climate finance for Ghana's RE transition be mitigated?

Methodological Approach

This research is grounded on a comprehensive review of Ghana's energy industry and renewable energy literature review. It will make use of qualitative desk study methodology that draws on dependency theory and the two models of aid criteria (the donor interest model and the recipient-needs model). Using Ghana as a country case study and area of focus, the study aims to provide a thorough investigation of understanding the geopolitical complexities of financing renewable energy in Ghana from foreign finance, as the country's renewable energy sub-sector is dubbed promising (UNDP, n.d.).⁹ Besides, the country has legislated ambitious RE sub-sector policies and strategies which demonstrates its resolve and commitments towards facilitating a sustainable RE transition and low carbon economy. Ghana's stable democracy, political peace and stability together with the abundance of RE sources make it an ideal African country for RE trade, investment opportunities and development. Moreover, the country is challenged by persistent energy crisis and erratic power outages as a result of the increased demand for energy. Additionally, this has been amplified due to the country's low energy generation, transmission losses and deficits, growing population, industrial development needs, and urban growth. These energy sector challenges have consequently necessitated the need to intensify the diversification of the country's energy generation mix to include an upscaling of RE sources. Given the similar socio-economic conditions among West African countries, Ghana as a country case study provides insights into the rising geopolitics of financing renewable energy transitions in the region. For these reasons, the focus on Ghana illustrates how the RE sub-sector needs and development of an African country are supported by foreign green finance.

The study focuses on the political and economic interests of two prominent and instrumental multilateral financial institutions, the World Bank and the Africa Development Bank. These financial institutions have and continue to play strategic and key roles in supporting Ghana's agenda towards a sustainable renewable energy transition. Both institutions are peculiar in terms of their composition, mandate, policies, et cetera, and provide a balanced contextualization of the interests of donors in Ghana's RE transition. The study assess the

⁹ United Nations Development Programme (UNDP) (n.d.). About Ghana. [online] UNDP in Ghana. Available at: <https://www.gh.undp.org/content/ghana/en/home/countryinfo.html#:~:text=A%20well%2Dadministered%20country%20by>.

World Bank's priorities and interests in financing Ghana's RE sector because of its strategic role and impact in the history of the country's energy sector. The World Bank has since the development of Ghana's energy sector stood as one of the prominent actors and influential external multilateral development banks (Pedersen, 2022). The selection of the World Bank for the study also stems from its prestige as the largest development bank, global reach and its development goals and agenda for Ghana. The evaluation of the Bank's RE sub-sector interests and financing shall reflect the critical role of global development banks for Ghana's development. The study also assesses the African Development Bank's (AfDB) interests and priorities in Ghana's RE subsector. The AfDB was the second largest contributor to Ghana's foreign green finance between 2013 to 2017 accounting for 18 percent of the country's aggregate climate revenue streams¹⁰. The AfDB's strategic position as a regional bank for Africa offers insights into Ghana's RE sector transition and the financial support, opportunities and regional assistance available to address Africa's sustainable development and energy sector solutions.

This study adopts the dependency theory (Prebisch, 1950¹¹; Wallerstein, 1974¹²) as its theoretical foundation to comprehend the dynamics of the economic and political interests of foreign green finance donorship in the renewable energy transition in Ghana. As expounded and posited by the likes of Raul Prebisch, Andre Gunder Frank, Euzo Falleto and Immanuel Wallerstein, dependency theory postulates that developing nations are unable to fully develop as a result of their dependence on advanced or developed economies. The theory accentuates the uneven power structures and dynamics that occur between developed countries and developing economies and examines the role that dependency plays in shaping economic and political systems (Prebisch, 1950). Dependency theory fundamentally asserts that the world economy is divided into two primary groups, the rich and poor economies, where the poor, otherwise known as the periphery, are reliant on the rich or core for economic sustenance, advancement and growth (Wallerstein, 1974). Traditionally, developing and underdeveloped economies provide labour and raw materials on the global market at a low cost, which are purchased and used by advanced countries for production of manufactured products (Prebisch, 1950). These completed goods are then bought by the underdeveloped and developing

¹⁰ Care (2020). Climate Finance Adaptation Study Report Ghana. <https://careclimatechange.org/wp-content/uploads/2021/01/Ghana-Climate-Adaptation-Finance-Tracking.pdf>

¹¹ Prebisch, R. (1950). *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.

¹² Wallerstein, I. (1974). *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.

countries at exorbitant costs, reducing their capacity to fund their own manufacturing potential (Prebisch, 1950). This depicts a negative endless loop that stratifies advanced countries and developing and underdeveloped economies into the core and periphery, respectively. Within the framework of foreign green finance in the context of Ghana, dependency theory provides a nuanced perspective to assess how donors might use foreign green financing as a medium to champion their interests. Particularly, this study investigates the motivation of the World Bank and the African Development Bank for providing foreign green finance for renewable energy transition, by delving into both their political and economic interests in Ghana's energy sector.

The study also explores the two models of aid criteria, the recipient-needs model versus donor interest model to ascertain whether foreign green financing champions the economic and political interests of donors or the needs of recipient countries. The recipient-needs model posits that aid must be provided to receiving countries and economies to complement and make up for the deficits of internal and national resources (Weiler & Sanubi 2019)¹³. The criteria for allocating resources according to this model is done by taking into consideration key factors like level of poverty and intensity of need of the beneficiary country, and their capacity to effectively use aid provided, as well as the capability of the sponsor to provide appropriate aid (Bandyopadhyay & Wall, 2006)¹⁴. Within the scope of this analysis, the recipient-needs model emphasises the utilisation of foreign finance to support renewable energy transition that is in alignment with the development needs of Ghana. Thus, the efficacy of foreign green financing shall be evaluated on the basis project alignments and energy sector needs of Ghana.

The second model of aid criteria, the donor interest model, points out that aid from sponsors is used as a medium to fulfil their economic, trade, and political interests (Bandyopadhyay & Wall, 2006). This implies that green financial support from external sources are provided in order to champion the energy sector interests of such sponsors and donors. This model shall be used to examine whether foreign green financing is used to implement projects that conform with the interests and priorities of the donors over the development goals and needs of Ghana. In this research, the two models of aid criteria shall be used to assess the pattern of financing from the World Bank and the African Development Bank in order to ascertain whether climate financial support is provided according to the interests of the Banks or per the needs of Ghana's

¹³ Weiler, F., & Sanubi, F. A. (2019). Development and Climate Aid to Africa: Comparing Aid Allocation Models for Different Aid Flows. *Africa Spectrum*, 54(3), 244-2671

¹⁴ Bandyopadhyay, S., & Wall, H.J., (2006). The Determinants of Aid in the Post-Cold War Era, Federal Reserve Bank of St. Louis Working Paper 2006-021. <https://doi.org/10.20955/wp.2006.021>

energy sector. These models present different outlooks on the distribution of external financing for Ghana's renewable energy sub- sector.

The employment of the dependency theory and the two models of aid criteria in the study provide a comprehensive understanding and approach on whether donors provide foreign green financing to Ghana for renewable energy transition with the goal of meeting the needs of the recipient country or their own political and economic interests. This will assist in identifying resource flows and gaps in these flows in the context of global power dynamics, helping to clarify the relationship between the need for a green finance and the economic and political interests of green investments in Ghana's renewable energy transition.

To identify the risks of foreign climate finance to Ghana's sustainable transition to RE as well as the mitigation strategies for balancing such risks, the study explores a cross-disciplinary approach that utilizes a blend of expert knowledge, diverse sources of information and scholarly literature in the energy sector scholarship. The study then synthesizes and adapts the findings to suit the needs of Ghana's RE sub-sector.

The study draws on the use of scholarly journals, government documents and records, information from websites of identified donor countries and entities, publications of organisations such as the World Bank, the African Development Bank, United Nations Development Programme (UNDP), the International Renewable Energy Agency (IRENA), International Energy Agency (IEA), the Climate Policy Initiative, et cetera.

Structure

The research is structured into six principal parts. The study commences with a review of existing literature on the history and trends in Ghana's energy sector and finance flows, and its transition to renewable energy. The second chapter provides an overview of the policies, projects and international financiers in the history of Ghana's energy sector development. It also discusses the sources of foreign green finance for Ghana. In the third chapter, the research focuses on the political and economic interests of foreign green finance in Ghana's transition to renewable energy. Here, the study assesses the political and economic interests and priorities of the World Bank and the African Development Bank in financing Ghana's RE transition. It also assesses the funding pattern of both banks in line with Ghana's political regimes since the country first gained republic status in 1960. The fourth chapter of the thesis investigates the potential risks of foreign finance to Ghana's sustainable transition to renewable energy by

taking into thorough consideration the risks of official finance and private finance. The fifth chapter centres on the prospects of balancing and de-risking Ghana's foreign financing inflows. This features the institutional hurdles to green finance inflows, and measures for de-risking such external green finance. In the last chapter, the study discusses the limitations and main findings of the research.

CHAPTER 1: LITERATURE REVIEW

1.1 Literature Analysis and Gaps

In the face of the 21st century's quest to mitigate and build resilience towards the deteriorating climate, the need to shift to eco-friendly and renewable forms of energy has become more urgent. Undeniably, this green transition ultimately relies on the collective efforts of countries across the globe, which in turn is dependent on the respective economic status and capacity of each state. Despite global north countries having for decades contributed substantially to the growing levels of global CO₂ emissions than countries of the global south, the disproportionate reality is that the global south bears the highest consequences of climate change and ecological impacts. Owing to the fact that these developing and underdeveloped countries do not possess the resources and adequate economic capacities to independently address these climate issues, this has created discrepancies in the climate mitigation quest. To address this, rich countries and foreign entities provide green financing to these underdeveloped and developing economies as means to fulfil their obligations (including financial, technology transfer and capacity building support) and pledges under environmental agreements and protocols¹⁵. Donastorg et al (2017)¹⁶ note that although many governments of developing countries have passed legislation and developed strategic carbon emission reduction plans and frameworks, the absence of domestic financing amplifies their dependence on private and international streams of funding for developing their energy sectors and transitioning to renewable energy. They emphasise that these developing countries have various internal and external alternatives of funding the development of RE technologies and projects, however they are persistently confronted by complexities such as governance, administration, and management of RE resources, and project implementation and accountability. They point out that albeit these numerous financing channels, developing countries have failed to harness these new sources due to the speculative risks, and continue to rely on traditional funding¹⁷ streams.

According to the International Renewable Energy Agency (IRENA), foreign financing has been an instrumental and major source of funding for the development and establishment of

¹⁵ Under Art 9, 10, & 11 of the Paris Agreement, Art 12 & 17 of the Kyoto Protocol and Art 4 of the United Nations Framework Convention on Climate Change.

¹⁶ Donastorg A., Renukappa S., & Suresh S. (2017). Financing Renewable Energy Projects in Developing Countries: A Critical Review. 2nd International Conference on Green Energy Technology. IOP Conf. Series: Earth and Environmental Science 83 <https://iopscience.iop.org/article/10.1088/1755-1315/83/1/012012/pdf>

¹⁷ These include loans from financial institutions and through equity selling from sources like insurance companies, pension funds, mutual funds, Stock Market, and Real estate.

renewable energy technologies in developing countries like Ghana¹⁸. In as much as such financing is beneficial for the global common good (in most cases and in theory), the motivation and underlying interests of these foreign donors tend to have both positive and negative implications for recipient countries. According to Olanrewaju (2019), this often shapes and influences renewable energy projects and alignment, technology preferences, which may also result in tied policy conditionalities¹⁹. This underscores the significance of assessing the motives of foreign green finance in Ghana's renewable energy development. There is an extensive literature on renewable energy transition which cuts across the deployment and impacts of renewable energy on the country's economy, the political economy of financing renewable energy, and associated risks. For instance, (Pedersen 2022) observes that financing from Western donors have played a key role in shaping national energy sector priorities in Ghana (predominantly between RE and non-RE, electricity access, distribution and expansion), with this influence fluctuating over time²⁰. Nonetheless, Bawakyillenuo (2017) points out that the transition to, and deployment of renewable energy technologies in Ghana is substantially limited owing to the fact that investment in the sector are insignificant²¹.

Climate Policy Initiative (2022)²² highlights that overall climate investments available to Africa benefits only a handful of countries. The report explains that Ghana and nine²³ other countries in Africa attracted the highest climate financing from multilateral financial institutions. This pattern of financing was determined by the varying domestic conditions in African countries such as political stability and socio-economic security, governance and institutional structures, skilled labour, among others. The report highlights the role of bilateral development finance institutions and foreign governments (second and third largest donors) in supporting climate funds and emphasises the lack of transparency in inflows from China into the continent. Moreover, the Climate Policy Initiative report (2022) notes that Africa's RE sector opens investment opportunities which can be harnessed to limit dependence and financing of non-renewable sources like fossil fuels.

¹⁸ IRENA and CPI (2023), Global landscape of renewable energy finance, 2023, International Renewable Energy Agency, Abu Dhabi.

¹⁹ Olanrewaju, O. (2019). The Role of Conditionalities in Renewable Energy Financing in Africa. *Journal of Sustainable Development*, 12(3), 1-13. <https://doi.org/10.5539/jsd.v12n3p1>

²⁰ Pedersen, H. Rasmus. (2022). Towards a political economy of renewable energy in Ghana: A Review.

²¹ Bawakyillenuo, S. (2017). The Political Economy of Renewable Energy Investment in Ghana. *IDS Bulletin*, 48(5-6), 1-14. <https://doi.org/10.19088/1968-2017.167>.

²² Climate Policy Initiative. (2022). *Landscape of Climate Finance in Africa*.

²³ "They are Egypt, Morocco, Nigeria, Kenya, Ethiopia, South Africa, Mozambique, Cote d'Ivoire, and Tunisia" (Climate Policy Initiative, 2022, p. VI)

Owusu-Manu et al. (2021) add that renewable energy development in Ghana is restrained by business, legislative and financial obstacles. They assert that predominant barriers such as delayed return on investments, insignificant historical records, and substantial initial expenses are at the forefront of these investment constraints in the growth of Ghana's renewable energy sub-sector²⁴. As the call for climate mitigation and adaptation continues to gain intensity, the need for urgent financing also increases. It is important to highlight that investments, donorship and financial transactions associated with renewable energy transitions are characterised by both perceivable and hidden risks. These risks (particularly financial), Ahmed et al (2022), point out, pose detrimental and negative environmental impacts when not effectively managed. They add that financial risks are connected to renewable energy financing, and that an increase in such risks reduces the allocation of resources for renewable energy projects and technology. Agrawal (2012) notes that risks such as credit, financial, legal, political, regulatory, operations, market, et cetera, which are closely related to renewable energy deployment most often determine and influence the investor's choice of investment location and the kind of renewable energy they invest in²⁵. Bilotta and Colantoni (2018) argue that investment in renewable energy deployment in Africa has remained largely unattractive to potential investors due to the perceived and associated risks in the sector.²⁶ They emphasise that these risks can be mitigated and offset through measures such as securitization, guarantee instruments, and aggregation. Similarly, the UNDP (2021) notes that the growth of developing countries are stunted by the exorbitant costs of green energy financing, which are further made unappealing due to risks of regulatory, financial, and technical nature. Additionally, the UNDP suggests that developing countries must strongly consider the utilisation of policy and financial de-risking instruments with the overarching goal of reducing the substantial costs associated with financing renewable energy²⁷.

However, one can observe that current literature does not deal with the core motivation that drives donors, particularly multilateral financial institutions, for providing financing for renewable energy transition, specifically in the context of Ghana. Moreover, there

²⁴ Owusu-Manu, D. G., Mankata, L. M., Debrah, C., Edwards, D. J., & Martek, I. (2021). Mechanisms and challenges in financing renewable energy projects in sub-Saharan Africa: A Ghanaian perspective (Version 1). Deakin University. <https://hdl.handle.net/10536/DRO/DU:30148641>

²⁵ Agrawal, A. (2012). Risk Mitigation Strategies for Renewable Energy Project Financing. *Strategic Planning for Energy and the Environment*. 32(2), 9-20

²⁶ Bilotta, N., & Colantoni, L. (2018). Financing Energy Access in Sub-Saharan Africa. Istituto Affari Internazionali (IAI). <http://www.jstor.org/stable/resrep19690>

²⁷ UNDP (2021). Derisking Renewable Energy Investment. <https://www.undp.org/publications/derisking-renewable-energy-investment>

is little emphasis on the possible risks, of both political and economic aspects, that foreign green finance can pose to Ghana's renewable energy sub-sector and transition. Current literature places emphasis on the potential risks of investors and donors and not on the possible risks that foreign finance poses to the renewable energy sub-sector of the recipient countries, i.e., national risks. In light of these gaps, this research, as previously established, has the goal of exploring the political and economic interests of foreign finance in Ghana's renewable energy sub-sector. The study seeks to evaluate the risks that foreign financing may pose to the country's renewable energy transition. By doing so, this research assesses the potential for Ghana to balance and de-risk the inflows of foreign green finance to ensure a sustainable growth and development of its renewable energy sub-sector.

CHAPTER 2: FOREIGN GREEN FINANCE IN GHANA

2.1 Overview of Policies, Projects and International Financiers in the History of Ghana's Energy Sector

The government of Ghana has since the 1960s showed commitment towards developing its energy sector. The country has executed and implemented policies that support the development and transition to renewable energy which have created a conducive and enabling space for donors to invest in its energy industry. These have included major legislations and policies like the *Renewable Energy Act*, *National Energy Policy*, *the Renewable Energy Master Plan*, *the National Energy Strategy*, *Energy Sector Strategy and Development Plan*, et cetera.²⁸ Ghana's energy sector has and continues to benefit from financing from a number of sources. Primarily, Ghana's electricity generation capacity is dominated by hydropower and thermal energy. The country energy sector has and continues to experience erratic and unplanned power outages due to disruptions in electricity supply and distribution. However, in the quest to address these issues and expand the generation mix, renewable sources of energy such as solar PV and wind power systems were introduced and steadily gained traction due to their relative cheapness at the time (Pedersen, 2022). From 2000 to 2015, the Energy Commission (2023) noted that the portion of hydropower in the energy mix increased between an impressive interval of 51 to 92 percent. By the end of 2022, thermal energy accounted for the highest portion of the total electricity generation with 64%, and hydropower making up 35% (Energy Commission, 2023). The other sources of renewable energy on the other hand did not experience any significant growth in the course of the period, and in 2022 accrued a maximum percentage of 0.70 (Energy Commission, 2023). Thus, Ghana's energy generation mix continues to experience a deficit in its share of RE (Bawakyillenuo, 2017). Nearly all efforts by the country's government to rectify national energy issues are often temporary and transient, resulting in more drastic future energy shortages and electricity outages. This turn out, contradictorily, does not reflect the ambitious energy policies, national climate goals, and international sustainability agreements that Ghana is party to.

The discussion on renewable energy donorship in Ghana took root around the early 1980s when oil crises and environmental sustainability gained traction. Like other developing states at the

²⁸ Global Data. (2022). Ghana Renewable Energy Policy Handbook.

time, Pedersen (2022)²⁹ indicates that Ghana received limited assistance on a trial basis from external sponsors, and this was reflected in the country's national and sectoral energy policies. For instance, such policies in the 1980s aimed to increase national electrification which was bolstered but failed to include renewable sources. In Ghana, hydropower projects existed in the colonial period, but gained prominence and momentum during the reign of the country's first president, Kwame Nkrumah which followed the years after independence (Tsikata, 2006)³⁰. The construction of the *Akosombo Dam* under the *Volta River Project*, aimed at achieving nation-wide electrification, was part of the government's ambitious efforts to spear-head state-led national growth and expand the economy (Pedersen, 2022; Miescher and Tsikata 2009³¹). Prior to the execution of the *Volta River Project*, Botchway, (2000)³² underlines that Ghana's energy sector was privatised and powered by non-renewables,³³ with energy supply being restricted to the cities. Noer (2007)³⁴ emphasises that owing to financial constraints, Nkrumah's inability to fulfil these ambitious endeavours ultimately resulted in dependence on external assistance. This resulted in the privatisation of the *Volta Aluminium Company* (VALCO) with *U.S-operated Kaiser Corporation* accruing majority shares (Darko et al. 2019)³⁵. In addition, the project benefited from financial assistance in the form of loans particularly from the United States, the United Kingdom and the World Bank (the dominant donor) towards its finalisation (Darko et al. 2019). Brew-Hammond (1996) acknowledges that the *Volta River Project*, through its hydropower generation, marked a significant milestone in Ghana's renewable energy sub-sector³⁶.

The 1990s set the stage for the promotion and implementation of global sustainability. This new wave unveiled the urgency to transition from unsustainable practices to eco-friendly and

²⁹ Pedersen, R., H. (2022). Towards A Political Economy of Renewable Energy in Ghana: A Review. MIASA Working Paper No. 2022(4)

³⁰ Tsikata, Dzodzi (2006), *Living in The Shadow of The Large Dams: Long Term Responses of Downstream and Lakeside Communities of Ghana's Volta River Project*, Boston: Brill.

³¹ Miescher, Stephan and Dzodzi Tsikata (2009), *Hydro-Power and The Promise of Modernity and Development in Ghana: Comparing the Akosombo and Bui Dam Projects*, in: *Ghana Studies*, Vol. 12, No.1, pp. 15-53.

³² Botchway, Francis (2000), *The state, governance and the energy industry in Ghana*, in: *Verfassung und Recht in Übersee/Law and Politics in Africa, Asia and Latin America*, Vol. 33, No. 2, pp. 176-211.

³³In this case by diesel.

³⁴ Noer, Thomas (2007), *The New Frontier and African Neutralism: Kennedy, Nkrumah, and the Volta River Project*, in: *Diplomatic History*, Vol. 8, No. 1, pp. 61-79.

³⁵ Darko, Deborah, Michael Kpessa-Whyte, Emmanuel Obuobie, Pius Siakwah, Obodai Torto, and Dzodzi Tsikata. (2019), *The context and politics of decision making on large dams in Ghana: an overview*, in: *Future DAMS Working Paper 002*, Manchester: The University of Manchester.

³⁶ Brew-Hammond, Abeeku (1996), *The electricity supply industry in Ghana: issues and priorities*, in: *Africa Development/Afrique et Développement*, Vol. 21, No. 1, pp. 81-98.

climate-safe standards through the realisation of the mitigation, adaptation, and resilience-building goals approved at the 1992 United Nations Framework Convention on Climate Change (UNFCCC). Again, this opened access to climate financing from various donor countries and external entities. The transition to, and access to novel forms of renewable energy in most developing and least developed countries was among the prominent issues that attracted such foreign finance. During this period, Ghana's energy sector benefited from financing from the World Bank, Western, Arab and European donors.

Pedersen (2022) highlights that Ghana's priorities, unlike other countries, in the 1990s focused more on national electrification rather than the diversification of energy mix. He adds that rather than a focus on meeting overall global emission reduction and sustainable energy transition targets, the upscale of renewable energy deployment was a direct result of the energy security concerns. During this period, Kapika and Eberhard (2013)³⁷ assert that external financing for RE relied heavily on policy reforms in the energy sector, with the World Bank assuming the role of the most prominent donor. This resulted in the diversification and inclusion of thermal projects with funds (including research grants) from foreign donors.

Moreover, Edjekumhene and Dubash (2002)³⁸ indicate that in 2006, the country's ten percent RE increase through its *Strategic National Energy Plan*, which had the backing of Western donors, faced implementation impediments and restrictions. This was attributed to the exploration of natural gas reserves and profitable oil in 2007, which challenged the expansion of RE. Donor investment interests and priorities thus switched from RE to funding oil and gas projects. In the case of the World Bank, its private division- the *International Finance Corporation* provided millions in loans³⁹ towards supporting projects like the *Jubilee Oil Field*, establishment of an oil field by *Vitol*, development of the *Tema petroleum storage facility* (IFC, 2012⁴⁰; World Bank, 2020⁴¹).

³⁷ Kapika, Joseph and Anton Eberhard (2013), *Power-sector reform and regulation in Africa: lessons from Kenya, Tanzania, Uganda, Zambia, Namibia and Ghana*, Pretoria: HSRC Press.

³⁸ Edjekumhene, Ishmael and Navroz Dubash (2002), Ghana: Achieving public benefits by default, in: N. Dubash and S. Rajan (eds.), *Power politics: Equity and environment in electricity reform*, Washington DC: World Resources Institute, pp. 117-138.

³⁹ USD 100 million and USD 115 million respectively in 2009 and an additional USD 100 million in 2012

⁴⁰ IFC (2012), *Kosmos Energy Finance International*, online: (Accessed: 20 April 2024).

⁴¹ World Bank (2020), *Implementation Completion and Results Report on An Ida Guarantee In The Amount of US\$500 Million And an IBRD Enclave Guarantee in The Amount of US\$200 Million For the Republic of Ghana in Support of The Sankofa Gas Project*, online: (Accessed: 20 April 2024).

Other prominent actors such as the United States of America continue to play significant roles in financing Ghana's energy sector. The USA co-financed the energy industry projects like the *Volta River Project*, the *Expansion of the Akosombo Dam*, the *Takoradi Thermal Plants*. It has additionally, through its *Power Africa* initiative, provided financial assistance towards the *Sankofa Project* (a gas sector initiative) which ultimately aimed at encouraging private sector involvement through consumer-oriented strategies in Ghana's energy sector (USAID, 2017⁴²; Power Africa, 2016⁴³).

Moreover, external financing into Ghana's energy sector diversified to include private and non-western sources like foreign oil corporations, and Chinese petroleum-financed loans. Hannam (2016)⁴⁴ asserts that Power Africa's involvement and interest was aimed at neutralising and reducing the prominence and control of China in Ghana's coal and hydro industry in its energy sector. Table 2.1.1 provides an overview of some historically prominent donors in Ghana's RE sector between the 1960s to 2020.

In Europe, Ghana has benefited from energy sector financing from strategic and notable energy sector financiers and donors like the institutions of the European Union, European Development Bank, Italy, Germany, and the United Kingdom, et cetera. Their financial support have been directed towards the execution of projects such as the establishment of the renewable, non-RE, and energy sector-wide initiatives. This has included, but not limited, to the development of the *Kpone Dam*, *Interconnectors Linking Ghana to Côte d'Ivoire*, the *Distribution of Solar Panels project* (2009 to 2012), *Electricity Expansion and Distribution*, et cetera.

Among others, Japan, Canada, Turkey, the United Arab Emirates, as well as other Arabian countries have also demonstrated their interests in growing and developing Ghana's energy industry through monetary and economic support for project deployment. The presence and influence of such foreign green financiers for the country's energy sector underscore the explicit relevance of external donorship for holistic national and community-centred growth. For the private sector, Ghana has benefitted from investments and projects by the likes of *Tullow Oil*, *Kosmos*, *Vitol*, *Quantum Group*, *Aker Energy*, et cetera. The International Finance Corporation (IFC) of the World Bank supports private sector initiatives for Ghana's energy

⁴² USAID (2017), *Power Africa: A 2017 Update. Fact Sheet*, online: (Accessed: 20 April 2024).

⁴³ Power Africa (2016), *Ghana: Power Africa Fact Sheet*, online: (Accessed: 20 April 2024)

⁴⁴ Hannam, Phillip Matthew (2016), *Contesting authority: China and the new landscape of power sector governance in the developing world*, online: (Accessed: 20 April 2024).

sector development through the provision of loans and debt facilities. For instance, in the 2009, the IFC supported the Jubilee Oil Field by providing 115 million USD to *Kosmos Energy Limited* and over 100 million USD to *Tullow Oil* (IFC 2009). In 2012, it provided extra financing assistance of 100 million USD to the two private investor for the oil project (IFC, 2012).

Project	External Donor	Financial Commitment Period	Type	Instrument
Volta River Project	World Bank, US, UK	Early 1960s	Hydro	Loan
Electricity Expansion and Distribution	World Bank, Germany, UK	Late 1960s	Distribution	Loan
Expansion of the Akosombo Dam	Canada, Italy, USA, World Bank	1972	Hydro	Loan
Kpone Dam	World Bank, Arab and European Agencies, Canada ⁴⁵	1977	Hydro	Loan
Interconnectors Linking Ghana to Côte d'Ivoire	Africa Development Bank (AfDB) and the European Investment Bank ⁴⁶	1978-1983	Access	Loan
Takoradi Thermal Plants	World Bank, USA & Arab Donors ⁴⁷	1994	Thermal	Loan
Osagyefo Power Barge	Japan ⁴⁸	1995	Offshore Gas	
Bui hydropower plant	China (China–Africa Cooperation Summit in Beijing)	2006	hydro	Concessional loan
The Sunon Asogli gas-fired plant	China	2007	Natural Gas	Equity

⁴⁵ World Bank 1985; Miescher and Tsikata 2009)

⁴⁶ (AfDB 2005).

⁴⁷ World Bank 1995; Edjekumhene et al. 2001; Eberhard et al. 2016.

⁴⁸ Opam and Turkson 2000: 54; Botchway 2000

Ghana Energy Development and Access Project (GEDAP)	World Bank, the GEF and other donors,	2007	energy development and access	Loan
Distribution of Solar Panels	Europe ⁴⁹	2009-2012	solar	-
Atuabo Project	China	2011	Natural gas	Loan
Jubilee Oil Field	International Finance Corporation		oil	Loan
Sankofa Project	World Bank, USA Power Africa Initiative	2015	gas	Loan
BXC project	Purely funded by China, Chinese Shaanxi Regional Electric Power Group (SPG) ⁵⁰	2012	solar	-
Renewable Energy Technology Transfer project	Danish Int. Development Agency, China-Ghana South-South Cooperation	2015- 2018	RE	grant

Table 2.1.1: An overview of Some Prominent Foreign Financing in Ghana's RE Sector (Pedersen, 2022)⁵¹

2.2 Sources of Foreign Green Finance

Financing renewable energy in Ghana in the contemporary age has metamorphosed into an imperative agenda on the country's national climate action endeavours. Ghana's access to funding RE projects emanates from the broader climate financing available for undertaking adaptation and mitigation initiatives. Between 2019 to 2020, a Climate Policy Initiative analysis showed that Ghana's climate finance is made up of 87% public sources and 13%

⁴⁹ Brass et al. 2019).

⁵⁰ Anning and Vhumbunu 2018: 1083

⁵¹ Pedersen, R., H. (2022). Towards A Political Economy of Renewable Energy in Ghana: A Review. MIASA Working Paper No. 2022(4)

private sources⁵². As shown in Figure 2.2.1, Ghana's average climate finance in that year was totalled at \$ 830 million. This amount only reflects on average about five percent of the total climate funding needs required to meet the country's ambitious climate targets.⁵³ These RE financing came from both national and international streams. Total public financing accounted for \$722 million, which consisted of national revenue from Ghana at \$271 million, and funds from multilateral development banks and financial institutions at \$248 million, mainly in the form of grants, and low-cost projects debts. From Figure 2.2.1, total private financing (foreign and domestic) on the other hand amounted to \$106 million which consisted primarily of 47% in debt and 43% in equity, with the remaining 10 percent unknown. Whereas foreign private finance made up 7 percent of total financing from the aggregate climate funds, domestic private sources accounted for the remaining 6 percent. Commercial Finance Institutions (FIs) and corporations represented the highest funding flows from the private sector with 45 million USD and 39 million USD respectively, with Export Credit Agency (ECAs), households and unknown sources making up the least (Climate Policy Initiative, 2023).

In terms of sectoral distribution of Ghana's climate financing, the Agriculture, Forest, Fisheries and Land Use (AFOLU) sector received the highest funding at \$235 million. The second largest recipient of climate finance, the energy sector, derived 88% of its funds from private financing primarily in the form of debts and equity. The remaining percentage was sourced mainly through grants. The residual financing was shared across the water and waste sector (\$145 million), as well as the other cross-sectoral industries (\$207 million) (Climate Policy Initiative, 2023).

Regarding the distribution of climate finance by targets, Ghana's National Determined Contributions centre on mitigation (\$386 million) and adaptation (\$403 million) goals. Financing towards mitigation represented 47% of overall climate finance, with the energy sector benefitting 51% allocated mitigation funds at \$197 million. Adaptation-allocated funds on the other hand primarily span across the other sectors (Climate Policy Initiative, 2023).

Given that the energy industry constitutes the highest sectoral emitters of greenhouse gases, i.e., 63% in the overall national emission, this influences the allocation of adaptation and mitigation financing (UNFCCC, 2021). Investments in solar photovoltaics represented greater than 50% of total energy investments. Additionally, prominence is given to electricity

⁵² Climate Policy Initiative. (2023). Climate Finance in Ghana. Climate Policy Initiative.

<https://www.climatepolicyinitiative.org/publication/climate-finance-in-ghana/>

⁵³ At present, Ghana requires over fifteen billion USD to achieve its climate and sustainability goals.

generation in the country, with over 65% of the energy sector financing such projects. Electricity distribution and transmission on the other hand tend to receive less funding, accounting for only 5% of aggregate energy financing. Although the country has positively achieved national electrification by 86%, the demand for energy access continues to increase twice as much as previous levels, which thus requires significant and committed financing in electricity production, transmission and distribution (World Bank 2023; Government of Ghana, 2021).

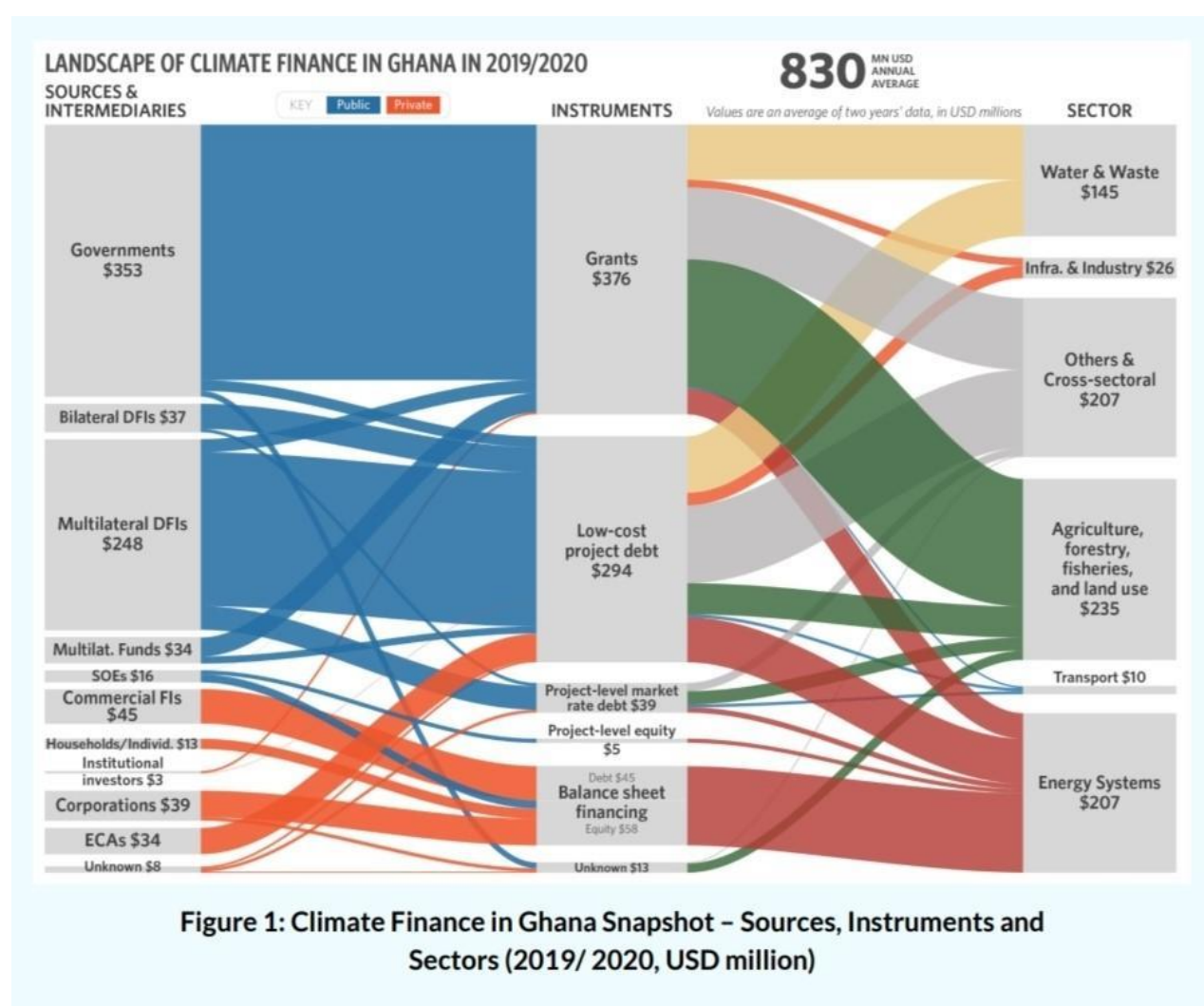


Figure 2.2.1: Climate Finance in Ghana Snapshot-Sources, Instruments and Sectors for 2019/2020, USD million. (Climate Policy Initiative, 2023)⁵⁴

⁵⁴ Climate Policy Initiative. (2023). Climate Finance in Ghana. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/climate-finance-in-ghana/>

CHAPTER 3: POLITICAL AND ECONOMIC INTERESTS OF FOREIGN GREEN FINANCE IN GHANA'S TRANSITION TO RENEWABLE ENERGY

3.1 *Assessment of the Political and Economic Interests of the World Bank*

3.1.1 Analysis of the World Bank's Priorities

As one of the most prominent, largest, and prestigious multilateral financial institutions in the world, the World Bank upholds the resolve to eliminating poverty, enhancing economic and sustainable growth (World Bank)⁵⁵. The Bank comprises five principal subsidiary institutions, i.e., the International Bank for Reconstruction and Development (IBRD), the International Finance Corporation (IFC), the Multilateral Investment Guarantee Agency (MIGA), the International Centre for Settlement of Investment Disputes (ICSID), and the International Development Association, that have the obligation of providing capital, policy, technical and knowledge transfer support to developing economies (World Bank). In line with its mission, the World Bank stands committed to achieving the following imperative agenda: development at the global level that encompasses and includes all, particularly women and the younger generation; sustainable development that cuts across promoting and facilitating the attainment of the targets set out in the United Nations Sustainable Development Goals; and robust and transformative development (World Bank). Since its establishment, the Bank has collaborated with multiple entities and governments towards the realisation of its agenda. The United Nations embodies one of such partnerships manifested through the Millennium Development Goals, the Sustainable Development Goals, and the 2030 Development Agenda (World Bank)⁵⁶. This partnership, among others, has transcended intercontinentally and regionally, across the various member countries, and beyond numerous sectors and industries.

Among its global sustainability priorities, the World Bank acknowledges the imperativeness of facilitating an equitable and rapid transition from the dependence on energy sources that are high carbon (World Bank, n.d.)⁵⁷. Through its initiative on a “*Just Transition for All*,” the Bank aims at aiding with governments and relevant parties and stakeholders towards the

⁵⁵The World Bank (n.d.). Who We Are. <https://www.worldbank.org/en/who-we-are#:~:text=The%20World%20Bank%20Group%20is%20one%20of%20the%20world's%20largest,prosperity%2C%20and%20promoting%20sustainable%20development>.

⁵⁶ The World Bank (n.d.). World Bank Group and the 2030 Agenda <https://www.worldbank.org/en/programs/sdgs-2030-agenda#1>

⁵⁷ World Bank (n.d.). Just Transition for All: The World Bank Group's Support to Countries Transitioning Away from Coal. <https://www.worldbank.org/en/topic/extractiveindustries/justtransition> (Accessed on April 27, 2024)

development and implementation of regulations and strategies requisite for facilitating a low-carbon future, assist affected communities, and achieving adaptation and mitigation goals. The Bank has since the late 1990s committed over \$3 billion into advancing the agenda on phasing out coal, and enabling the clean energy transition (World Bank, 2021).

The World Bank gives priority to financing renewable energy deployment, and a transition to a low carbon economy globally, with a particular interest in assisting developing and least developed countries to realise this goal. Moreover, this interest is complemented by Ghana's renewable energy needs, policies and long-term strategic development goals, which fit within the context of the Bank's climate and energy goals.

In line with the World Bank's Climate Action Plan and the UN SDG 7, the Bank pledges commitment towards "ensuring access to affordable, dependable, sustainable, and modern energy for all". For the Bank, this goal directly addresses its conscious efforts towards enhancing global health, environmental sustainability, and reducing poverty (World Bank 2021⁵⁸; World Bank, 2016)⁵⁹. Towards this end, the Bank places importance on the globally sustainable, available, stable, and cost-effective renewable energy agenda, with a distinctive emphasis on developing and least developed countries (World Bank, 2016). Thus, the Bank allocates financing (low-cost) to energy efficiency, energy accessibility, and the deployment of, transition to renewable energy, and energy tracking and research. As part of its endeavours, the Bank has executed several initiatives and projects across the world, towards achieving the targets of SDG 7. The Bank has spearheaded energy programs and operations in Africa through financing schemes like the Climate Investment Funds (CIF) and the Clean Technology Fund (CTF)⁶⁰. Programs like the Scaling-Up Renewable Energy Program (SREP) have benefited from the CIF amounting to over \$404 million (World Bank, 2016). The continent has over the years gained from the CTF in the sum of \$750 million (World Bank, 2016). Additionally, the Bank has executed the Lighting Africa program in 12 African countries which targets electrification through mobile and immobile solar panel electricity generation (World Bank, 2016). Within its objective of increasing private engagement and involvement, the Bank implemented the Scaling Solar initiative, which focuses on providing guidance and support to countries that are open to drawing investments from the private sector towards bolstering the

⁵⁸ World Bank (n.d.). Just Transition for All

⁵⁹ World Bank. (2016). Sustainable Development Goal on Energy (SDG7) and the World Bank Group. <https://www.worldbank.org/en/topic/energy/brief/sustainable-development-goal-on-energy-sdg7-and-the-world-bank-group> (Accessed on April 27, 2024).

⁶⁰

solar power markets and scaling-up electricity generation and supply through solar photovoltaic technologies.

Overall, the World Bank's political and economic interests in financing RE development and transition are underpinned by its overarching goals of climate change mitigation; energy access and security; promotion of the United Nations' Sustainable Development Goals; development of the renewable energy market and private sector involvement; and international partnership and cooperation.

3.1.2 Funding Patterns and Project Investments in Ghana's Energy Sector

In Ghana, the World Bank has, since the 1900s, stood as one of the dominant players in the energy sector (Pedersen, 2022). During the 1960s, the Bank allocated \$63.0 million into the establishment (1962) and expansion (1969) of the Volta River Project, which included the *Akosombo Dam* and a major aluminium plant, and also the increasing of electricity distribution systems across subunits in 1968 through the *Electricity Expansion Project*, as shown in Table 3.1.2.1 (World Bank, n.d.)⁶¹. From 1970 to 1979, the Bank invested \$ 64.1 million dollars on projects centred on electricity distribution (1971), electricity access through the *third Power Project* (1977), and the *Kpong Hydroelectric Project* (1977)⁶² (World Bank, n.d.). The 1980s saw the World Bank's energy financing for Ghana totalled at \$ 107.2 million (World Bank, n.d.). During this period, priority was given to power access and distribution in 1985 and 1989, followed by the petroleum sector with three projects in 1983, 1984, and 1987, and one diesel project. In 1990, 1993, and 1995, Ghana received \$521.3 million geared towards the *Sixth Power Project*, a national electrification project and a thermal power project respectively (World Bank, n.d.).

During the course of 2000 to 2010, the energy sector benefited from financing from the Bank for six projects, which added up to two \$381.09 million (World Bank, n.d.). This included two projects each in 2007 (*Ghana Rural Energy Access Project*, and *Ghana: Energy Development and Access Project*), 2008 (*Solar PV Systems to Increase Access to Electricity Services in*

⁶¹ World Bank (n.d.). Volta Expansion Project. <https://projects.worldbank.org/en/projects-operations/project-detail/P000836> (accessed on April 02, 2024)

⁶² World Bank (n.d.). Projects. <https://projects.worldbank.org/en/projects-operations/projects-list?os=0> (accessed on April 02, 2024)

Ghana, and One Child one Solar Light), and 2010 (*Gas and Oil Capacity Building Project, and Additional Financing for the Ghana Energy Development and Access Project*) (World Bank, n.d.). Spanning from 2014 to 2024, Table 3.1.2.1 indicates that \$1,099.8 million was invested in the following projects: *Additional Financing for Ghana Oil and Gas Capacity Building Project* (2014), *Ghana Sankofa Gas Project* (2015), *Additional Financing for Energy Development and Access Project* (2015), *Ghana Energy Sector Transformation Initiative Project* (2018), and the *First Resilient Recovery Development Policy Financing* in 2024 (World Bank, n.d.). Although the Bank has additionally committed \$250 million towards the Ghana Energy Sector Recovery Program, this project has not yet been approved, however it is under development.

In terms of project objectives by renewable, non-renewable and other (access, distribution and expansion), the World Bank's focus in the energy sector spans across different systems. This is categorised into three periods- before the 21st century (1962 to 1999), the first decade of 21st century (2000 to 2010), and the 2nd decade of the 21st century (2011 to 2024). From 1962 to 1999, the Bank funded a total of three hydro projects, five distribution, expansion, access, and development projects, and four non-renewable energy projects, i.e., three petroleum and one diesel. From 2000 to 2010, the World Bank financed five projects which had renewable energy components, i.e., predominantly solar with some wind. Additionally, the Bank financed one project in the oil and gas sector (non-renewable), with the one other project focusing on energy access and operational efficiency. From 2011 to 2024, the World Bank funded three non-renewable energy projects in the oil and gas sector, one renewable energy- centred projects, and two energy sector-wide projects.

The pattern and trends exhibited in the World Bank's financing in the energy sector of Ghana are shaped by, and depict interconnected dependency, where the country relies on foreign finance which in turn determines the type and nature of energy projects and initiatives. Throughout the World Bank's history of energy sector financing in Ghana, it has invested in more non-renewable energy projects than in projects that deploy and facilitate the transition to renewable energy. Per the assertions of dependency theory, external actors, investors and donors champion projects that may sustain Ghana's dependency on foreign finance, rather than those that serve to create self-reliance and sufficiency. The Bank's preference in financing more non-renewable energy projects maintains the sector's reliance on high carbon sources of energy, which in turn deepens the country's dependence on foreign finance in mitigation and

climate adaptation efforts. The allocation of huge investments in non-RE projects could strengthen the already persistent inequalities inherent in the energy sector. This could further increase disproportionate distribution of, and access to power at the national level, thereby further affecting rural and less developed communities. Again, this does not align with the broader global sustainability commitments and targets, as well as national goals of transitioning to a low-carbon economy. This concentration on non-renewable energy initiatives depicts discrepancies and non-alignments with energy sector policies of phasing out coal and fossil powered energy sources.

Although the Bank has provided financial assistance to power RE transition in Ghana, the prioritisation of non-RE projects undermines the Bank's overriding objectives of facilitating and supporting the transition to low carbon intensive energy sources in Ghana. As these carbon intensive initiatives and projects may require the expertise of external contractors and resources, the idea of inclusive development and local level- led growth is weakened, thereby inhibiting local and community opportunities and empowerment in Ghana.

Despite the fact that the first set of power sector investments by the World Bank were in favour of renewable energy, this preference has shifted, and since the 1970s included a mix portfolio of non-renewable sources and energy-sector wide, access, and distribution. This prioritization and investment in more non-RE initiatives and projects in Ghana's energy sector can be attributed to the energy and power sector needs and priorities of the country. Ghana has and continues to experience constant power outages, locally known as "*dumsor*." Moreover, Pedersen (2022) notes that the regulation of the country's energy sector has been influenced by the intrinsic need for stable energy supply and the abundance of fossil fuel resources. Since the country's exploration of petroleum in 2007, this has led to the prioritizing of its non-RE sub-sector over its RE counterpart. Irrespective of the numerous RE policies and strategies implemented by the government, actual decarbonization goals are less prioritized. This energy need of Ghana has thus influenced the focus of financing received from the Bank.

It becomes evident that the Bank's financing patterns shifted following the needs and interests of Ghana's energy sector. This implies a difference between the political and economic interests of the Bank, and the needs and priorities of Ghana's energy sector. Moreover, it again suggests a non-alignment with the World Bank strategic energy sector priorities and intended policies, and actual project implementation. Furthermore, the Bank's role in championing and strengthening Ghana's energy sector through non-renewable energy sources exposes the sector

to dependency trap with a monopolisation of fossil fuels and carbon intensive sources in the generation mix. In the medium and long-run, this could obstruct the national agenda of transitioning to sustainable and clean energy.

Project	Year of Approval	Amount (\$Million)	Type
Ghana Energy Sector Recovery Program	Pipeline	250.00	Energy sector-wide recovery
First Resilient Recovery Development Policy Financing	2024	300	Energy sector financial discipline
Ghana Energy Sector Transformation Initiative Project	2018	20.00	Natural Gas
Ghana Sankofa Gas Project	2015	700.00	Gas
Additional Financing for Energy Development and Access Project	2015	60.00	Increased RE capacity
Additional Financing for Ghana Oil and Gas Capacity Building Project	2014	19.80	Oil & Gas Sector
Additional Financing for the Ghana Energy Development and Access Project (GEDAP)	2010	70.00	Renewables (Wind, Solar)
Gas and Oil Capacity Building Project	2010	40.0	Oil & Gas Sector
One Child one Solar Light	2008	0.24	Renewable (Solar PV)
Solar PV Systems to Increase Access to Electricity Services in Ghana	2008	4.35	Renewables (Solar)
Ghana: Energy Development and Access Project (GEDAP)	2007	175.50	Energy Access, Operational Efficiency, Renewable (Solar, Wind)

Ghana Rural Energy Access	2007	91.00	Renewable (Solar)
Thermal Power Project	1995	310.60	Thermal
National Electrification Project	1993	135.40	Transmission & Distribution
Power Project (06)	1990	75.30	Sector Development
Northern Grid Extension Project	1987	6.3	Diesel
Power Project (05)	1989	40.0	Power Access
Petroleum Refining and Distribution Project	1987	15.00	Petroleum
Power Project (07)	1985	28.00	Power Access & Distribution
Petroleum Refinery Rehabilitation and Technical Assistance Project	1984	6.9	Petroleum
Petroleum - Energy Project	1983	11.00	Petroleum
Kpong Hydroelectric Project	1977	39.0	Renewable (Hydro)
Power Project (03)	1977	18.00	Power Access
Power Distribution Project	1971	7.10	Distribution
Volta Expansion Project	1969	6.0	Renewable (Hydro)
Electricity Expansion Project	1968	10	Expansion of distribution systems
Volta Power Project	1962	47.0	Renewable (Hydro)

Table 3.1.2.1: The World Bank Project Financing in Ghana's Energy Sector (World Bank, n.d.)

3.1.3 Ghana's Different Political Regimes and the Bank's Lending Politics

The World Bank's interests in climate financing, like other multilateral DFIs, are dependent on a myriad of factors that determine and influence the allocation of funds, project type, sector, and quality of delivery. Although Ghana has and continues to be a beneficiary of the Bank's assistance and support over the decades, it is irrefutable that there are political and

environmental considerations that have impacted the overall climate of financing that the energy sector attracts from the Bank.

Given the current political landscape as of 2024, Ghana is a working democracy that conducts periodic elections every four years. The country's peaceful political transition since its fourth republic under President Jerry John Rawlings has been an exemplary benchmark of democratic processes in Africa (UNDP, 2022)⁶³. Ghana has persistently honoured the tenets of democratic processes, rule of law, and independent institutions (World Bank, 2024). Undoubtedly, the political regimes in Ghana have been contributory to the energy investments and financial assistance the country has attracted over the years. In order to assess the impact of the country's political climate and regime on the Bank's interest in financing the energy sector, the study shall draw on the regime type in Ghana since the 1960s against the project type implemented.

In the First Republic (a democracy), which spanned from 1960 to 1966, the World Bank invested in the *Volta Power Project* (1962), which accounts for one RE project, as presented in Figure 3.1.3.1. From 1966 to 1969, Ghana was governed by a military government, the *National Liberation Council*. During this period, the Bank allocated funds towards the *Volta Expansion Project*⁶⁴ (RE) and *Electricity Expansion Project* (other). The Second Republic which commenced from 1969⁶⁵ to 1972, transitioned from a military regime to a democracy. The Bank, throughout this time, allocated \$ 7.10 million to the Power Distribution Project. This regime was followed shortly by a military government, the *National Redemption Council* (NRC) which governed from 1972 to 1975. During the NRC's reign, the World Bank did not invest in Ghana's energy sector. From 1975 to 1979, state power shifted from the NRC's military government to another military leadership, the *Supreme Military Council* (SMC).

Throughout the governance of the SMC, the World Bank invested in the establishment of the *Kpong Hydroelectric Project* and the *third Power project*, amounting to \$57 million. The Third Republic, a democracy, which began in 1979 and lasted till 1981 did not receive World Bank financing in the energy sector. The Provisional National Defense Council (1981-1992) shortly overthrew this government. During this era, the Bank invested in the following projects- *the fifth, sixth and seventh Power Projects, Northern Grid Extension, Petroleum Refining and Distribution Project, Petroleum Refinery Rehabilitation and Technical Assistance Project, and*

⁶³ UNDP. (2020). Ghana Peace Brief.

https://www.undp.org/sites/g/files/zskgke326/files/migration/gh/UNDP_Ghana_Peace_Brief_2022.docx.pdf

⁶⁴ Approval date was in June 1969.

⁶⁵ The country transitioned to a civilian government in October 1969.

the Petroleum - Energy Project. The fourth republic, which spans from 1992 to present has experienced five different presidential transitions, which have by far been characterised by democratic processes like peaceful and fair elections. This period had the most financing from the World Bank in the energy sector.

Figure 3.1.3.1 shows that from 1993 to 2001 under the leadership of Jerry John Rawlings, the energy sector received a total of \$ 446 million for the *Thermal Power Project* and the *National Electrification Project*. John Agyekum Kuffour's reign from 2001 to 2009 obtained \$ 271.09 million for the *Ghana Rural Energy Access, Ghana: Energy Development and Access Project, Solar PV Systems to Increase Access to Electricity Services in Ghana, and the One Child one Solar Light*. Under John Atta Mills from 2009 to 2012, the Bank allocated \$ 110 million towards the *Additional Financing for the Ghana Energy Development and Access Project* (GEDAP) and the *Gas and Oil Capacity Building Project*. For John Dramani Mahama's administration from 2012 to 2017, Ghana's energy sector received \$ 779.8 million for the financing of the *Ghana Sankofa Gas Project, the Additional Financing for Energy Development and Access Project, and the Additional Financing for Ghana Oil and Gas Capacity Building Project*. Throughout Nana Akuffo-Addo's leadership, the World Bank has committed \$ 570 million towards the *First Resilient Recovery Development Policy Financing* and the *Ghana Energy Sector Transformation Initiative Project*. Additionally, the Bank has pledged \$250 million for the *Ghana Energy Sector Recovery Program*, which is underway.

Under the various republics and political regimes, it is evident that there were shifts in the energy priorities in relation to external financing. From Figure 2.2.3.1, the World Bank's financing in Ghana after its independence and first republic provide valuable insights into how the various regime types and transitions have influenced the Bank's political and economic motivation to finance the energy sector. The data reveals that the Bank's interest in RE development and transition in Ghana during the era between the first and third republic, although present, were not as strong in comparison to the period of the fourth republic. At the time, Pedersen (2020) pointed out that investments were allocated owing to growing energy security concerns. Moreover, these changes and alternating transitions in the political regime between military governments and democratic governments influences the negotiating leverage and authority with the World Bank.

During the First Republic, the energy sector received a total of \$47 million towards RE development. This suggests an alignment of donor priorities with recipient needs. In the period

of the NLC administration, \$6 million went towards RE, and \$10 million for other energy projects. For the Second Republic, the World Bank allocated \$7.1 million for other energy projects. During the period, foreign investment were limited due to Ghana's public debt. The SMC government received \$39 million for RE development and \$18 million for other energy sector projects. The NRC regime and the Third Republic received no funds for the energy sector. The country experienced energy supply shortage which additionally impeded the development of RE (Pedersen, 2022). In the reign of the PNDC, Jerry John Rawlings implemented policies that aimed at promoting socialism and national dependence on the West for the country's energy sector (Pedersen, 2022). Nonetheless, these reforms were unsuccessful in attracting investments from communist countries, which led the implementation of the *Structural Adjustment Program* and the *Economic Recovery Program* which were sponsored by western finance from the World Bank and IMF (Pedersen, 2022). The Bank thus committed \$39.2 million towards the non-renewable energy sub-sector, and \$143.3 million for the other priorities in the energy sector. Through the period from the first republic to the third republic, the investment preference was given to renewable energy, which was followed by the other sector-wide priorities like access and distribution. The fourth Republic received the most funding from the World Bank.

The 1990s saw an increase in energy sector policy reforms which did not prioritize RE. However, in 2001 RE deployment in rural communities gained traction through market-driven strategies (Pedersen, 2022). Energy supply shortage in 1993 steered Rawlings' administration to implement energy sector reforms in the country's utility administration, governance and taxation, following the World Bank's conditional financial support. Pedersen (2022) observes that in the first decade of the 21st century, the World Bank which was the principal donor in the country's energy sector had minimal impact on influencing energy sector priorities in Ghana from non-RE to RE. Subsequently, RE development gained prominence in Ghana's energy sector, and this was demonstrated through the *Strategic National Energy Plan* in 2006. Nonetheless, RE deployment was delayed due to cost-related impediments and the preference of energy access projects (Pedersen, 2022). The exploration of gas and oil in 2007, as well as the 2007 energy shortages in 2007 and 2016 redirected concentration on non-RE sub-sector project development in the subsequent years.

Overall, while the RE sector in the fourth republic received the least amount of \$401.1 million, the other sector-wide category received the \$435.4 million. The non-renewable energy sub-sector on the other hand received the most financial investment from the World Bank, totalling

an amount of \$1,090.4 million from the Bank. This change in project preference of the World Bank before and after the fourth republic mirrors the evolving political circumstances and contexts, and the tactical interplay of donor interests against the needs and fundamental sustainable development objectives of recipients in the energy sector. Moreover, this focus on non-RE projects reflects Ghana's domestic interest in meeting its energy needs and utilizing its fossil fuel resources. Additionally, the erratic power outages experienced nationwide have also shaped the government's focus on energy distribution and access.

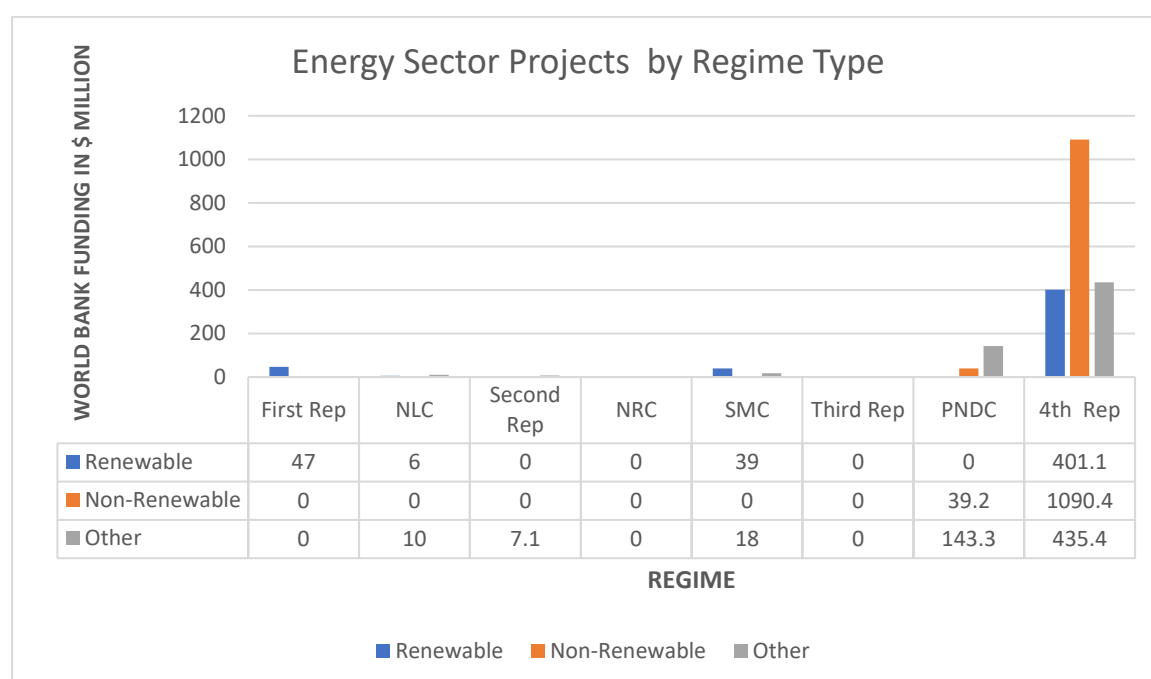


Figure 3.1.3.1: Ghana's Energy Sector Projects by Regime Type from The First to The Fourth Republic (World Bank, n.d.)

3.2 Assessment of the Political and Economic Interests of the African Development Bank Group

3.2.1 Analysis of AfDB's Priorities

Headquartered in Abidjan, the African Development Bank Group (AfDB) is a multilateral development finance institution established with the core aim of achieving resilient and long-term social development and economic growth in Africa. Created in 1964, the Bank is made

up of three subsidiary bodies, which are the African Development Fund, the African Development Bank, and the Nigerian Trust Fund. As part of the Bank's long-term ambitions in Africa is the goal of eradicating poverty across the continent and ensuring quality living standards by stimulating sustainable investments from public and private sources towards the holistic and resilient economic growth of African countries. The Bank is charged with the fundamental role of providing equities and loans to its regional member countries towards the implementation of development-related programs and projects. Moreover, the Bank supports its members with strategic policy advice, technical support and knowledge, and attracting beneficial investments and development partnerships to Africa.

As part of its overarching priorities, the Bank is committed to meeting the targets of these central goals, otherwise known as the African Development Bank's High Fives. First, *the Feed Africa* agenda aimed at powering and increasing the capacity of the agricultural sector in order to sufficiently feed millions of people, decrease poverty, and boost agrarian productivity (African Development Bank Group, n.d.).⁶⁶ Second, *the Industrialize Africa* agenda, seeks to expand and variegate the African economy. Third, *the Integrate Africa* priority agenda is geared towards stimulating economic trade relations and investments within Africa towards developing a resilient market economy in the region. For the fourth priority, the Bank seeks to *improve the quality and standard of life for the people in Africa* by increasing and boosting the region's reach to socio-economic prosperities. It aims to achieve this agenda through the provision and creation of jobs, social and health infrastructure, capacity and skill development, and hygiene and sanitation. Finally, *the Light up and power Africa* agenda, aims at ensuring comprehensive electrification across Africa by the year 2025 (African Development Bank Group, 2019).⁶⁷

In line with this agenda, the AfDB has implemented the *New Deal on Energy for Africa* which is focused on aiding African countries in securing energy financing and sustainable investments, providing technical and strategic policy and regulation development for improving the energy sector, creating a holistic *Transformative Partnership for Africa*, and ultimately increasing the ambitions and targets towards addressing the energy and power crises in Africa (African Development Bank Group, 2019). The Bank aims to achieve the envisioned

⁶⁶ African Development Bank Group. (n.d.) The High 5s For Transforming Africa. <https://www.afdb.org/en/high5s> (accessed on May 1, 2024)

⁶⁷ African Development Bank Group. (2019). Light Up and Power Africa. https://www.afdb.org/sites/default/files/2019/07/05/high_5_light_up_africa.pdf

universal electrification in the region by 2025 through the efficient and effective utilisation of low-carbon and renewable energy technologies. This target necessitates the supplying of additional capacity at 160 GW, an extra 75 million off-grid connection, and an additional 130 million on-grid installations (African Development Bank Group, 2019). This endeavour will also demand making available low-carbon and eco-friendly cooking technology alternatives to more than 150 households in Africa. Additionally, the AfDB predicts that regional member countries will require 60 to 90 billion USD towards the realisation of this ambitious agenda. In light of this, the Bank committed to provide \$12 billion in energy finance towards funding energy sector initiatives and projects between 2016 and 2020 in Africa (African Development Bank Group, 2019). The Bank is also striving to up the inflow of investments into Africa's energy and power sector through the following initiatives and ventures- the Desert to Power Initiative, the Sustainable Energy Fund for Africa, the Africa Energy Market Place, and the Facility for Energy Inclusion.

For the Bank, these integral agendas are requisite towards ensuring Africa's resilient growth and align with the goals and targets set in the United Nations Sustainable Development Goals. Moreover, the Bank's "*At the Center of Africa's Transformation (TYS)*," which was a strategic plan from 2013 to 2022 targeted accomplishing the shift to sustainable and comprehensive development through the following critical strategies- "infrastructure development, regional economic integration, private sector development, governance and accountability, and skills and technology".

As the AfDB's five priorities, *TYS*, the UN SDGs, and Agenda 2063 share the overarching goal of tackling climate change, combating poverty and achieving universal and equitable development, the Bank seeks to address these challenges in Africa through its strategic global partnerships. Towards this endeavour, the Bank supports its regional member countries on the quest to green transition and development (African Development Bank Group, n.d.)⁶⁸. This borders around the various sectors and industries, which focus on bettering the standard of healthcare access, energy security, adequate access to food and sanitation, responsible natural resource management, et cetera. In this venture, the Bank's main objectives in achieving sustainable green growth and development comprise enhancing regional resiliency to the

⁶⁸ African Development Bank Group (n.d.). Objectives. <https://www.afdb.org/en/about-us/mission-strategy/objectives> (accessed on May 1, 2024)

impact of climate change, developing long-term and eco-friendly infrastructure and amenities, and facilitating services and activities that are beneficial to the ecosystem.

3.2.2 Funding Pattern's and Project Investments in Ghana's Energy Sector

The African Development Bank Group has substantially made strides in the development and growth of Ghana's economy. Based on the Bank's High Five priority agenda, the Bank implements projects in the various sectors and industries, which are in line with the objectives and commitments spelt out in its overarching agenda. The Bank has five primary sources of financing economic growth and development projects available for Ghana. The African Development Fund, which is the largest source of funding from the AfDB has committed about \$ 2,404.22 million in total to the development initiatives and endeavours in Africa. This was followed by the African Development Bank, with an amount of \$744.37 million. The Bank again has supported Ghana through the *Global Agriculture and Food Program* with 20.16 million USD. Ghana has also benefited from the *Africa Water Facility Fund* (6.72165 million USD) and the *Nigerian Trust Fund* (5.38 million USD) (AfDB, n.d.). Between 2013 and 2017, the Bank was the largest multilateral donor of climate finance for Ghana supporting a total of 12 projects with an amount of 11.7 million USD. This accounted for 28 percent of total climate finance during the period (Care, 2020)⁶⁹.

For the country's energy sector, financing from the Bank Group is primarily provided by the African Development Bank and the African Development Fund. In August 1978, the Development Bank committed 8.4 million USD towards the implementation of the Interconnexion Project, which was primarily aimed at increasing and strengthening access to, and distribution of electrical power in Ghana, as shown in Table 3.2.2.1 (AfDB, n.d.)⁷⁰. In June 1986, the African development Bank committed 32.7 million USD towards the implementation of the *Brong Ahafo Electricity Network* (AfDB, 1997)⁷¹. The *Ghana Power System Reinforcement Project*, approved in November 2007, was a project that received financial

⁶⁹ Care (2020). Climate Finance Adaptation Study Report Ghana.

⁷⁰ African Development Bank Group (n.d.). Interconnexion Project.

<https://projectsportal.afdb.org/dataportal/VProject/show/P-GH-F00-002> (accessed on April 01, 2024)

⁷¹ African Development Bank Group (1997). Ghana: The Electricity Network Reinforcement and Extension to Brong Ahafo Region. <https://www.afdb.org/en/documents/document/ghana-the-electricity-network-reinforcement-and-extension-to-brong-ahafo-region-9627> (accessed on April 01, 2024)

assistance from the African Development Bank. The project aimed at providing access and increased supply across Kumasi (AfDB, n.d.)⁷².

From Table 3.2.2.1, the African Development Bank had approved 22 million USD for the execution of the *Takoradi T2 Thermal Power Plant Expansion Project* by mid-year in 2012. This project supplemented energy generation in Ghana by an additional 110MW to the pre-existing 220 MW thermal power generation (AfDB, 2019). Nearly two years later, the African Development Fund also committed 36 million USD to the *Electricity Distribution System Reinforcement and Extension Project*. This project aimed at amplifying power distribution and increasing the generation of electricity through renewable sources. Among its achievements, the project saw the establishment of the Ghana-Togo power distribution lines of 140 km of 330KV (AfDB, 2019). The Latest energy sector project from the AfDB Group was approved in January 2022. Again, the Development Bank supported the implementation of the *Ghana - Ghana Mini Grid and Solar PV Net Metering* with 26 million USD, with a focus on increasing access to electricity through solar PVs in Ghana.

The pattern of the AfDB's energy sector financing in Ghana from 1978 to 2022, as indicated in Table 3.2.2.1, presents a mix of project type, including RE, non-RE, and access and distribution. The shifting of the Bank's energy sector priorities from non-RE and access to RE development depicts a reprioritization of the Bank's interests. The prospects of this for the sector includes diversification of the country's generation mix which also aligns with its broader RE sub-sector goals. In the Bank's history of energy sector financing in Ghana, it has supported projects that facilitate the transition to renewable energy with higher financing than in non-RE projects. This shows the Bank's commitment to reduce the sector's over-dependence on fossil fuel resources. This aligns with the Bank's energy sector priorities and interests and also facilitates Ghana's mitigation and climate adaptation efforts. The allocation of huge investments in RE projects could address the already persistent inequalities inherent in the energy sector. This higher financing for renewable energy initiatives aligns with the country's energy sector policies of phasing out coal and fossil powered energy sources.

⁷² African Development Bank Group (n.d.). Ghana - Power System Reinforcement Project. <https://projectsportal.afdb.org/dataportal/VProject/show/P-GH-F00-003> (accessed on April 01, 2024)

Project	Year of Approval	Amount (\$Million)	Type
Ghana - Ghana Mini Grid and Solar PV Net Metering	Jan 2022	26	RE (Solar)
Ghana - Electricity Distribution System Reinforcement and Extension Project (GEDAP III)	Feb 2014	36	Renewable (Solar)/ distribution
Ghana - Takoradi T2 Thermal Power Plant Expansion Project	July 2012	22	Thermal
Ghana - Power System Reinforcement Project	Nov 2007	29	Access/ Non-renewable
Brong Ahafo Electricity Network	June 1986	32.7	Non-renewable
Interconnexion Project	Aug 1978	8.4	Access

Table 3.2.2.1: Ghana's Energy Sector Projects under AfDB Bank Financing (AfDB, n.d.)⁷³

Aside these national projects, the AfDB Group has additionally supported multinational projects, which have included Ghana and other regional member countries. For instance, in 2019, the Bank provided financial assistance totalling at 590,478.713 USD for the *Multinational - 330 KV Ghana – Burkina – Mali Interconnection Project Study* (AfDB Group, n.d.).⁷⁴ The Bank also committed 16,706,809.41 USD for the *Ghana-Togo-Benin 330 kV electricity interconnection project* in 2007 (AfDB Group, n.d.)⁷⁵.

3.2.3 Ghana's Different Political Regimes and the Bank's Lending Politics

The African Development Bank Group began providing energy and power sector assistance to Ghana in the late 20th century. AfDB financing has been geared towards both national and multinational projects in the country's energy and power sector. At the national level, the Bank has supported the country with financing across the various sectors included under its High Five Priority agenda (AfDB Group, n.d.)⁷⁶. Although the Bank is one of the largest multilateral

⁷³ African Development Bank Group (n.d.).

⁷⁴ African Development Bank Group (n.d.). Multinational- 330 KV Ghana – Burkina – Mali Interconnection Project Study. <https://projectsportal.afdb.org/dataportal/VProject/show/P-Z1-FA0-172> (accessed on April 02, 2024).

⁷⁵ African Development Bank Group (n.d.). Multinational - Ghana-Togo-Benin 330 kV electricity interconnection project. <https://projectsportal.afdb.org/dataportal/VProject/show/P-Z1-F00-034> (accessed on April 02, 2024).

⁷⁶ African Development Bank Group (n.d.). Ghana- Total Commitment. Data Portal. <https://projectsportal.afdb.org/dataportal/VTopCountry/show/GH> (accessed on April 02, 2024).

donors for Ghana, the energy sector penetration in terms of the Bank's financing for Ghana is minimal, as compared to its top five sectors that have, and continue to receive the most investments in the past (AfDB Group, n.d). These include the agriculture and rural development sector, transport sector, multi-sector, social sector, and water supply and sanitation sector (AfDB Group, n.d.)⁷⁷. This implies that despite the Bank's role as the highest multilateral between 2013 and 2017, its priorities and economic interests have been less in Ghana's energy sector. In total, Ghana's energy sector, through *the Light Up and Power Africa* agenda, has received a total of 154.1 million USD (115 million UAC).

During the country's first republic, Figure 3.2.3.1 indicates that the energy sector received no financing from the Bank. This pattern was consistent through the regimes of the National Liberation Council, the Second Republic, and the National Redemption Council. This may be attributed to the fact that the Bank was established in 1964 but became operational in 1966. In August 1978, and under the Leadership of the Supreme Military Council, the energy sector received 8.4 million USD financing from the AfDB Group for the Interconnection Project. This was as a result of Ghana's energy sector needs which prioritized energy access and distribution (Pedersen, 2022). In the Third Republic however, no financial commitments were made for the energy sector.

During the Provisional National Defense Council regime, the AfDB supported the *Brong Ahafo Electricity Network project* with 32.7 million USD, as shown in Figure 3.2.3.1. This was shortly after Ghana experienced the fall in energy supply which led to the crisis in 1979. The focus on non-RE sub-sector was aimed at meeting the high demands for electricity during the period. The PNDC government prioritised energy supply over the development of the RE sub-sector (Pedersen, 2022).

From Figure 3.2.3.1, Ghana received the highest financial assistance in the Bank's history of financing the country's energy sector in the Fourth Republic. Renewable energy deployment got the most financial support from the Bank, through the *Ghana - Electricity Distribution System Reinforcement and Extension Project*, and the *Ghana Mini Grid and Solar PV Net Metering*, which amounted to 62 million USD. This was followed by the electrification and access project, i.e., *Ghana - Power System Reinforcement Project* (which has non-renewable energy components). The *Ghana Takoradi T2 Thermal Power Plant Expansion Project*, a non-

⁷⁷ AfDB Group. (n.d.). Ghana- Total Commitment.

renewable energy project received the lowest financial assistance (22 million USD) from the Bank in the Fourth Republic.

In the 1990s, RE development had gained prominence and support from external donors in Ghana. However, the AfDB in 2007 and 2012 focused on non-RE and electricity access projects. This mirrored the national priorities following oil and gas exploration, as well as concern over energy shortage in Ghana, with a focus on non-RE oriented energy projects to address this shortfall. Here, domestic preferences were in non-alignment with the broader interests and energy sector goals of the Bank.

The years 2014 and 2022 received the highest RE sector financial support from the Bank. In 2016, energy shortage which affected the general supply and distribution of electricity across the country, influenced the interplay of energy sector politics and priorities. Pedersen (2022) notes that RE deployment in Ghana at the time encountered impediments due to the anticipated costs involved in deploying RE. Nonetheless, the AfDB's interests in financing Ghana's RE sector mirrors its resolve to achieving its low carbon transition goal in Africa. Additionally, through multinational projects in the West Africa region, the Bank provided financing for energy sector projects in Ghana's during the period of the fourth republic.

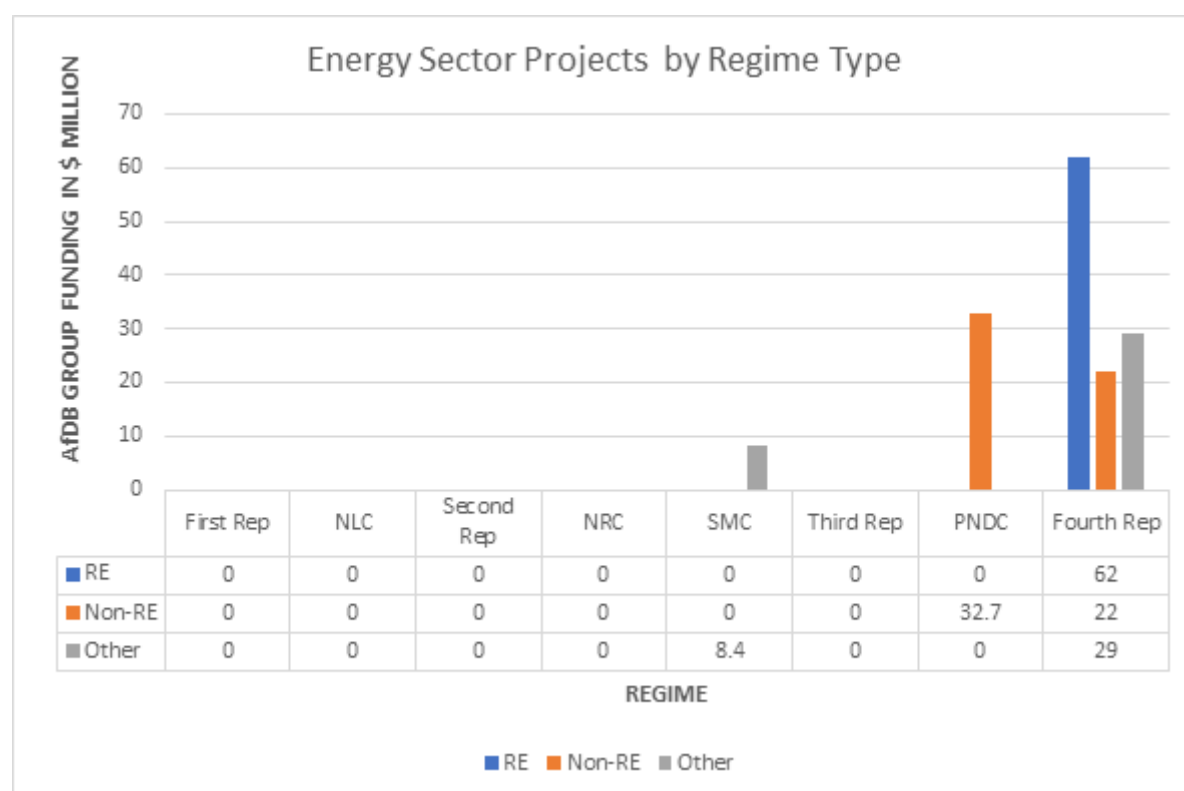


Figure 3.2.3.1: Ghana's Energy Sector Projects by Regime Type from The First to The Fourth Republic- AfDB Financing (AfDB, n.d.)

3.3 China in Ghana's Energy Sector

Aside the World Bank and the African Development Bank's relevance in Ghana's energy sector, other bilateral and multilateral donors have contributed to the development of the sector through foreign green and climate finance. Among these important actors in financing Ghana's energy sector development is China's strategic prominence (Tsang, 2023)⁷⁸. The financial and capacity building commitment and efforts from China underscore the importance of bilateral support in Ghana's energy sector development. For developing countries at large, China has demonstrated its resolve to power and support to climate-driven initiatives and undertakings through its *South-South Cooperation* agenda. Despite, China's interest in boosting climate-motivated change in developing and least developed countries through bilateral relations, it has not exceeded 10 percent of its climate finance commitment target of 3.1 billion USD. Averagely, between the periods of 2013 to 2017, China disbursed more than a billion USD per annum to support climate finance of global south countries (Tsang, 2023).

Moreover, through its *Belt Road Initiative* (BRI), China seeks to bridge the gap in funding climate mitigation, resiliency, adaptation, and the transition to low carbon endeavours of developing and least developed countries through capacity building, financial assistance, technical and technological transfer. It also aims to reduce the implementation of high-carbon energy projects and infrastructure under the BRI. This initiative additionally doubles as a strategy to amplify its strategic importance and position at the global arena (Tsang, 2023).

Leveraging its *Global Development Initiative*, China aims to support the realization of the targets and goals spelt out under the 17 UN Sustainable Development Goals, by means of strategic involvement and collaboration with multilateral and transnational organizations. In recent times, China has strengthened its interests and determination to countering the adverse impacts of climate change in Africa through the 2021 *China–Africa Cooperation on Combating Climate Change*. In this regard, China has asserted its climate obligations through a three-year

⁷⁸ Tsang, B., Schäpe, B. & Hackbarth, A. (2023). Follow the Money Chinese climate-related finance to the Global South. E3G Briefing Paper. <https://www.e3g.org/wp-content/uploads/E3G-Briefing-Follow-the-Money-Chinese-climate-related-finance-to-the-Global-South.pdf>

term implementation plan as well as via climate summits, dialogues and conferences (Tsang, 2023).

Within the energy sector, China has preserved and increased its role as a key bilateral actor in the development of Africa's energy resources. It has supported power industry endeavours through investments in energy distribution and electrification systems, and the expansion of RE and non-RE technologies. For Sub-Saharan Africa, China's position as a foreign financier has presented both economic, social and sustainability implications for countries. Its interest in the regions power systems cut across investment and expansion of conventional, modern and renewable energy sources (Shen, 2020)⁷⁹. In relation to its existence in the power sectors of other Sub-Saharan African countries, China's presence in Ghana's energy sector is rather current, which kickstarted in 2007 (IEA, 2016)⁸⁰. However, over the years China's influence and relevance in the country's energy sector has grown swiftly. In contrast to a country like Ethiopia where China's energy industry focus is solely on RE development, Chinese energy projects in Ghana cut across the various sub-sectors, power production using energy sources like hydro, coal and gas-powered plants in the power industry, and transmission (IEA, 2016).

China commenced its energy sector involvement in Ghana through the *Bui Dam hydro-electric project*. In 2006, Ghana had procured financial assistance from China to support the establishment of its third hydropower dam, which was later finalized and commissioned in 2013. The project which initially amounted to a total of 622 million USD was co-financed by the Ghana government with 60 million USD, and with the China Exim Bank covering the rest of the cost through buyer's credit (298.5 million USD) and concessional loans (263.5 million USD). Subsequently, the project incurred additional costs of 168 million USD which was catered for by the government of Ghana. This project was procured against Ghana's cocoa exports to China (IEA, 2016).

China has developed profound interest in Ghana's natural gas resource and has businesses established in the country, with some operating as IPPs. The *Sunon Asogli gas-fuelled plant* committed in 2007 is one of such projects, which involved collaboration between Shenzhen Energy and the China Development Fund. The project commenced operations in 2011. The project which was implemented in two phases was financed through equity, and in total cost 520 million USD (IEA, 2016). In 2011, China provided financial assistance for the

⁷⁹ Shen, W. (2020). China's role in Africa's energy transition: A critical review of its intensity, institutions, and impacts. *Energy Research & Social Science*, 68, 101578. <https://doi.org/10.1016/j.erss.2020.101578>

⁸⁰ IEA (2016). *Boosting the Power Sector in Sub-Saharan Africa. China's Involvement*. IEA Publications. f

establishment of the *Atuabo Project*, a natural gas plant in Western Ghana. The gas project was sponsored by the China Development Bank (CBD) and the government of China with a 3 billion USD master facility agreement (Ablo & Asamoah, 2018)⁸¹.

Additionally, a private Chinese-owned business implemented a 20MW solar project in Ghana through the *Beijing Xiaocheng Company (BXC)* project in 2012. The project which involved investment of 30 million USD was aimed at increasing Ghana's RE by 10% as well expanding national electrification (Ola, 2016)⁸². Despite this feat, this project was unsuccessful in meeting its initial target of 42.5MW due to impediments and mismatch arising from project cost and allocated financing. In the bid to facilitate and increase RE capacity and transition in Ghana, China from 2015 to 2018, through its *South-South Cooperation*, executed a three-year period initiative, the *Renewable Energy Technology Transfer project*. The project which was part of the *United Nations Sustainable Energy for All (SE4ALL)* was funded by the Danish government with the intent to accelerate Ghana's share of RE sources in its energy mix, as well as supporting off-grid local electrification (IEA, 2016).

China's financing in Ghana's energy sector commenced with a focus on renewable energy development through hydro in 2006. This focus, in not more than a year, shifted to the development of natural gas, a non-RE source. In 2011, China's largest energy sector financing in Ghana in the amount of 3 billion USD was directed towards the non-RE subsector development through natural gas resources. Through private-owned IPPs, China's RE deployment in Ghana was demonstrated through the 20MV solar development. Additionally, China between 2015 to 2018 focused on the transfer of RE technology to Ghana (IEA, 2016).

Overall, China's interests in Ghana's energy sector lay within exploring the opportunities derived from not only its RE industry, but significantly in its non-RE sector, as shown in figure 3.1.1. Just as Tsang et al (2023) point out, China's interests in providing climate-related finance to the global south are backed by business motives. Thus, it comes as no surprise that less financial support is offered to the RE sub-sector as compared to the non-RE sub-sector.

China has also been instrumental in providing electrification, energy access and distribution across the regions in Ghana. Chinese-operated energy businesses in Ghana have supported and

⁸¹ Ablo, A. D., & Asamoah, V. K. (2018). Local participation, institutions and land acquisition for energy infrastructure: The case of the Atuabo gas project in Ghana. *Energy Research & Social Science*, 41, 191-198. <https://doi.org/10.1016/j.erss.2018.03.022>.

⁸² Ola, D. (2016). BXC connects 20MW solar plant to Ghana's national grid. <https://www.pv-tech.org/new-solar-farm-launches-20mw-into-ghanas-national-grid/>

transmitted electricity to more than a million of the populaces. The China International Water and Electric Corporation (CWE) in partnership with the Exim Bank has supported Ghana's Self-Help Electrification Program in bolstering electricity access in its rural regions. An example is the 13,000 km lines developed by the CWE which has benefited more than a million individuals in the Upper West Region. Other Chinese operators like Hunan Engineering have also been impactful in electrification in the northern regional areas of Ghana (IEA, 2016).

The prospects for China to increase its prominence in Ghana's and Africa's energy industry are promising. China alongside its privately owned businesses have executed many energy sector projects in Ghana, and Africa. However, owing to the lack of transparency and accountability in Chinese operations, it is challenging to effectively track foreign green finance and investments (IEA, 2016).

Project	Year of Approval	Amount Committed (\$Million)	Type
Bui Dam	2006	562	Hydro (RE)
Sunon Asogli gas-fuelled plant (Phase I and II)	2007	520	Natural Gas
Atuabo Project	2011	3,000	Natural Gas
BXC project	2012	30	Solar (20 MW)
Renewable Energy Technology Transfer project (Chinese implemented/ Danish Government Funded)	2015-2018	6	RE

Table 3.3.1: Some Chinese Energy Sector Financing in Ghana (IEA,2016)

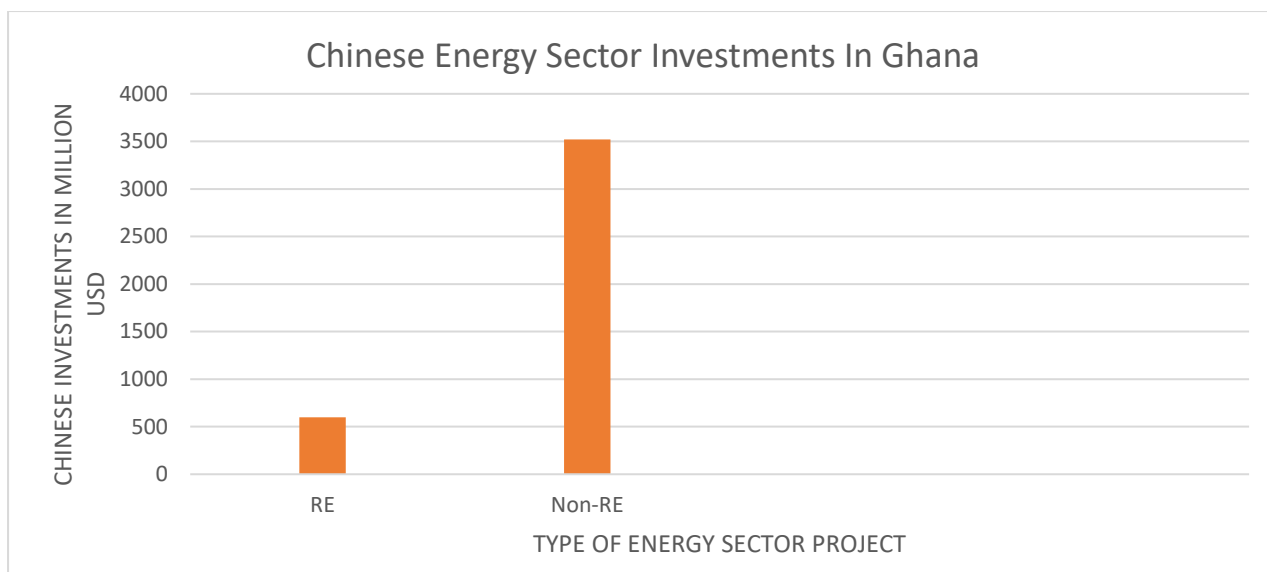


Figure 3.3.1: Some Chinese Energy Sector Investments in Ghana from 2007 to 2018 (IEA, 2016)

CHAPTER 4: RISKS FOR, AND RISKS OF FOREIGN FINANCE TO GHANA'S SUSTAINABLE TRANSITION TO RENEWABLE ENERGY

5.1 Institutional Hurdles to Green Finance Inflows

In the wake of the financial presence, commitment and interests of external financiers and donors like the World Bank, the African Development Bank, and China in Ghana's RE development, there are risks that are associated with the inflow of financing from such external entities. However, before exploring such risks, the study recognizes that the environment and institutional terrain within which such transactions occur play a vital role in shaping the inflow of such foreign green finance for RE development.

In Ghana, the government has affirmed its commitment towards the agenda of addressing climate change through a myriad of policy initiatives, plans, and frameworks, which have included *Ghana's Nationally Determined Contributions, the Ghana National Climate Change Policy, the National Climate Change Adaptation Strategy, and the National Climate Change Master Plan Action Programmes for Implementation from 2015 to 2020* (Ghana Ministry of Power, 2015). However, the efficient and effective implementation of such climate policies and strategies require financing from both domestic and external sources. The effective and impactful manifestation of such policies through RE project implementation require adequate financial support as much as they require a functional institutional environment. On the contrary, in Ghana there are hindrances and hurdles within the country's institutional set up that impede the inflow of foreign green finance.

Two imperative factors come to play in assessing the impediments to financial inflows for Ghana's climate agenda. On the one hand, there is the issue of attracting and stimulating investments into the economy. This is complemented on the other hand by institutional compatibility, support and ease of climate finance inflows into Ghana. However, institutional and administrative hurdles have been revealed to obstruct the free flow of climate funds, which persistently impede the productive and optimal implementation of climate-related policies. For Ghana's energy sector, these barriers have hampered the deployment and streamlined transition to renewable energy sources.

A significant constraint to Ghana's energy sector and climate finance inflows is the absence of coordinated and effective accountability and transparency in project implementation, costing,

and evaluation (U.S Department of State, 2023)⁸³. Ghana has a consistent record of maintaining peace and democratic processes and this has contributed immensely to attracting foreign investments and donorship for climate and energy sector financing. However, the country's lack of fiscal discipline, maintaining transparency in executing climate initiatives and projects, as well as its low stakeholder involvement has hindered the easy flow of foreign finance into the country.

Secondly, deep-seated institutional corruption has been a major impediment to the efficient inflow of climate and energy financing in Ghana. According to the 2023 U.S Department of State's climate investment statement, Ghana emerged 72nd out of 180 countries in a 2022 corruption index, which depicts a negative outlook for the state institutions⁸⁴. Foreign businesses have disclosed that most of their dealings and regular interactions with government agencies and institutions in Ghana are intertwined with deep-seated levels of corruption and demand for bribery in exchange for support and assistance. Also, the country is confronted with corruption embedded in the institutional and administrative systems of the country that leads to the misappropriation and embezzlement of financing allocated for energy and climate projects, which often encourages project discontinuity or haphazard and ineffective project implementation.

Investment processes, procurement and protocols in Ghana are intertwined with complex and multifaceted bureaucratic proceedings and administration (U.S Department of State, 2023). Despite the fact that foreign business registration in Ghana is digitalized, foreign investors are also subject to undergoing numerous time-consuming bureaucratic formalities and protocols which tends to deter the interests of current and potential investors (U.S Department of State, 2023). For instance, foreign investors are mandated to comply with at least four governmental agencies i.e., the Social Security and National Insurance Trust (SSNIT), the Ghana Revenue Authority (GRA), Ghana Immigration Service, and the GIPC. Irrespective of the easy registration processes, foreign investors encounter long bureaucratic hurdles which retard the interests of potential foreign businesses for the renewable energy sub-sector (U.S Department of State, 2023). Additionally, at the end of 2022, Ghana's energy sector alone had accrued over

⁸³ United States Department of State. 2023 Investment Climate Statement: Ghana.
<https://www.state.gov/reports/2023-investment-climate-statements/ghana/> (Accessed on May 16, 2024)

⁸⁴ United States Department of State. 2023 Investment Climate Statement: Ghana.

1.6 billion USD in debt, making up 2.3% of the national GDP (IMF, 2024)⁸⁵. This high energy sector debt has accounted for the decreased interests and preference of investors in the implementation and deployment of energy systems in Ghana.

Again, Ghana receives less energy financing than it requires for achieving its climate targets and goals due to its unskilled labour force (U.S Department of State, 2023). Renewable energy deployment requires the use of advanced technologies and a trained skill set that is low in Ghana's workforce. The country's energy sector regulations for foreign investments, *the Energy Commission (Local Content and Local Participation) (Electricity Supply Industry) Regulations, 2017 (L.I. 2354)*, mandates the involvement of local stakeholders, content and staffing in overall project implementation (U.S Department of State, 2023). For the renewable energy sub-sector, foreign investors are expected to include a minimum of 15 local participants which is anticipated to appreciate to 51 over a ten-year period. Foreign investors are subject to sanctions and imprisonment in the case where they fail to adhere to this regulation (U.S Department of State, 2023). Thus, it is challenging for foreign donors and investors to judiciously ensure local level participation and empowerment as they lack the required capabilities and skills. This, to some extent, has minimised the in-flow of project investments in the country's renewable energy sub-sector.

Although the government acknowledges the impediments brought by the deteriorating effects of climate change to its economy, the country has been ineffective in tackling climate change as development related (Care, 2020)⁸⁶. Ghana has set ambitious targets and goals through its national and local policies, strategies and plans. However, their effective enforcement and execution remains a hurdle, which has contributed to the low inflow of energy and climate finance. For instance, Ghana's Nationally Determined Contributions and national climate and energy policies do not have complementary strategies for attracting and stimulating renewable energy investments (Care, 2020). Although emphasis is laid on the role of private sector penetration and investments, there are no specific frameworks aimed at facilitating the efficient and effective flow of foreign green finance to boost renewable energy deployment.

⁸⁵ IMF (2024). 2023 Article IV Consultation, First Review Under the Arrangement Under the Extended Credit Facility, Request for Modification of Performance Criteria, And Financing Assurances Review—Press Release; Staff Report; Staff Supplement; And Statement by The Executive Director for Ghana.

⁸⁶ Care (2020). Climate Finance Adaptation Study Report Ghana. <https://careclimatechange.org/wp-content/uploads/2021/01/Ghana-Climate-Adaptation-Finance-Tracking.pdf>

Overall, the effective penetration of renewable energy and national climate financing have been impeded not only by the associated and perceived risks of renewable energy financing in Ghana, but also profoundly by institutional and national hurdles and constraints. The government of Ghana recognizes these barriers and has introduced measures such as the digitalization of business registration and tax holidays and rebates for development related projects to expedite and support the easy inflow of private investments as well as foreign businesses and enterprises (U.S Department of State, 2023).

4.1 Overview of the Risks of Foreign Green Finance

The transition to renewable energy is crucial for the achievement of the overall sustainability goals of Ghana, as well as for tackling the global agenda on climate mitigation, adaptation, and resilience building. As already established, Ghana's energy sector is heavily reliant on foreign finance for the implementation and execution of projects and development initiatives. These external financings for years have contributed to the realisation of Ghana's internal growth and development which have and continue to benefit the ordinary citizens in the country. Nonetheless, in addition to the impediments and institutional hurdles that obstruct the effective penetration and inflow of external finance for RE development, these opportunities from foreign financing are also obstructed by risks.

An imperative aspect of the financing and investment discourse lies in the prospects of profits, losses, and ultimately the risks involved (Donastorg et al, 2017). Bailey et al (2000) highlight that risk calculations are by far one of the imperative determinants of the provision of financial assistances of any form, ranging from financing from private investors, governments, multilateral entities to financial institutions⁸⁷. Just as lenders face a myriad of investment risks, recipients of such investments and financing are also prone to encountering certain risks. Nonetheless, the risks of investors and of borrowers can be translated differently. For investors and financiers, high risks on any investment portfolio are often associated with the possibility of higher returns (Donastorg et al, 2017)⁸⁸. For the borrower, higher risks are intricately linked to undesirable investment destinations, prolonged and unsustainable debts, and volatilities.

Notwithstanding these issues, the shift to clean, renewable, and carbon low energy sources, as part of the overarching development, decarbonization efforts and sustainable national growth

⁸⁷ Bailey, J., W., Court, B., Lamb, F., Simpson, G., Rose, P. (2000). Taking a Calculated Risk. Oilfield Review. https://www.researchgate.net/publication/287202442_Taking_a_Calculated_Risk

⁸⁸ Donastorg, A., Renukappa, S., & Suresh, S. (2017). Financing Renewable Energy Projects in Developing Countries: A Critical Review. IOP Conf. Ser.: Earth Environ. Sci. 83 012012.

agenda, presents new opportunities for Ghana, a country endowed with resources and an increased demand for power generation, distribution, and access. As domestic financing for this transition is insufficient to achieve these RE goals, this has consequently demanded the reliance on public and private foreign financing for the implementation and amplification of projects and initiatives. As pointed out, foreign financing for RE transition in Ghana primarily has two outlooks: prospects and risks. This chapter explores the diverse risks associated with foreign finance derived from the two main sources, public finance, and private finance. Through this assessment, the chapter reveals the nuances embedded in the risks that external financing exerts on Ghana's domestic fiscal and economic sustainability in the quest for a resilient transition to RE.

4.2 Risks of Foreign Public Finance

Ghana's external public finance is derived from a combination of streams that make up the country's aggregate climate financing. Emanating from governments, bilateral and multilateral DFIs, multilateral funds, et cetera, Ghana's external climate public finance has substantially been dominated by instruments such as grants, concessional loans, bilateral aid, and low-budget project debts (Climate Policy Initiative, 2023). Given that this form of financing is government-sponsored, financial assistance is provided to recipient countries for the achievement of specific country and sector needs, with the goal of addressing climate and sustainability related issues. For Ghana's energy sector, such financing is geared towards realising decarbonization goals, energy efficiency, affordability and access, renewable energy deployment, et cetera. These external public financing are characterised by concessional loans mostly to be repaid over the long run, as compared to short-term for-profit investments (Climate Policy Initiative, 2023).

As projects and initiatives financed by public financing come from governments and multinational organisations, there is some degree of transparency and accountability, and project monitoring and evaluation toward ensuring proper utilisation of financial assistance and meeting the objectives of such initiatives. Nonetheless, financing from external public sources are subject to, and characterised by sovereign risks that arise from potential alterations in the economic and political environment of the recipient countries (Das et al, 2012)⁸⁹. Sovereign risks are the risks that a country encounters (usually in an irregular manner) that affects its ability to make good on debt repayments (Das et al, 2012). The level of sovereign risks

⁸⁹Das, U. S., M. A. Oliva, and T. Tsuda. 2012. Sovereign Risk: A Macro-Financial Perspective. ADBI Working Paper 383. Tokyo: Asian Development Bank Institute. Available: <http://www.adbi.org/working-paper/2012/10/02/5241.sovereign.risk.macrofinancial.perspective/>

experienced vary from one country to the other and are dependent on country-specific factors which adversely impact the balance sheets of these economies (Das et al, 2012). This category of risk emerges from various channels and forms which bear significant repercussions for the economic and political health of recipient governments. These risks may include economic dependence (dependency risks), debt burden and refinancing risks, interest rate and exchange rate risks, policy conditionalities, and bureaucratic challenges and execution constraints.

4.2.1 Debt Burden and Refinancing Risks

One of the major risks encountered by countries that borrow from external public sources is the potential inability to repay debts (Das et al, 2012). Simply put, debt burden means the measure of a country's accrued debts against its national income and holdings (Das et al, 2012). It reflects the degree of debts that a country has against its name as against the value of its assets and total domestic revenue. When a country attains substantial debts above what it earns, this has the potential of stressing the country's fiscal resources, settling debts owed, honouring its strategic objectives, and rendering it undesirable for foreign investments (Das et al, 2012). Recipient countries may confront the potential risk of not having the financial capacity to honour their financial obligation of debt repayment when a given debt instrument reaches its due period. In some scenarios, such high debt burdens may prompt countries to consider refinancing. Refinancing involves the substitution of a country's prevailing debt instrument for a new debt instrument (Athanasopoulou et al, 2018)⁹⁰. The motive of refinancing mostly is aimed at paying off the principal sum of the accrued or prevailing debt during its maturity with newly acquired debt instruments. For renewable energy, refinancing risks apply to countries that are unable to secure such refinancing deals to offset existing debts. Refinancing risks may arise when there are misalignments in maturity of debts and the country's financial capacity to meet the terms of repayment (Das et al, 2012). Moreover, certain economic situations like interest rates, and investment interests, et cetera, if diminished may negatively impact the prospects of a refinancing for a country (Das et al, 2012).

For developing countries who do not possess the capacity to offset debt and avert the medium and long-term challenges that come with taking financial assistance from external sources, the effects of such risks are much more significant (Donastorg et al, 2017). Ghana's energy sector has relied on a combination of financial support lent from private sources, governments,

⁹⁰ Athanasopoulou, M., Consiglio, A., Erce, A., Gavilan, A., Moshhammer, E., & Zenios, A. S. (2018). Risk management for sovereign financing within a debt sustainability framework. Working Paper Series 31 European Stability Mechanism Luxembourg.

multilateral and bilateral DFIs. The country has been classified as being in a state of debt distress, which reflects the unsustainability of investing in the economy (World Bank, 2024)⁹¹. Following the aftermath and economic hardships brought about by the COVID 19 pandemic, Ghana's energy sector has, among the other sectors and industries, incurred one of the highest debts (Fitch, 2021)⁹². This is projected to affect the country's endeavours on the path to post-pandemic economic recovery, as the debt rate in 2024 is expected to amount to around 75% of the country's total GDP (Fitch, 2021). The country has a steady record of internally accruing outstanding debts repayments that ultimately overburden and increase its public debts (Fitch, 2021). This increment in debts prominently peaks around the season of periodic elections and transition in leadership, a period notable for policy and project discontinuity in Ghana (AfDB, 2019). Despite the political efforts, economic policy restructuring and reforms, debt mitigation and regulation, Fitch (2021) points out that high fiscal risks persisted in Ghana's financial sustainability outlook for 2020 and 2021, which was worsened by the COVID pandemic's outcome and its associated expenditure.

4.2.2 Dependency Risks

For the energy sector and renewable energy transition, Ghana's excessive reliance on public finance from the World Bank and the AfDB harbours the risk of a perpetual cycle of dependency where the country is unable to mobilise domestic financing for undertaking energy sector projects and renewable energy deployment. As the impact of the pandemic in 2019 and the depleting climate conditions continue to increase sector vulnerabilities, Ghana's energy sector is susceptible to experiencing a further appreciation in debt rate. Thus, this in part has resulted in, and will amplify the country's reliance on external public financing. Consequently, the implication for recipient and external finance dependent countries like Ghana is that any interruption in the inflow and pattern of financial assistance from such foreign public donors tends to greatly produce detrimental impacts. Moreover, if a government does not have a diversified source of foreign public borrowing, this restriction further cripples its ability to finance renewable energy projects in circumstances where donors prioritise other energy sector projects over renewable energy deployment.

⁹¹ World Bank. (2024). Ghana Overview: Development news, research, data.

<https://www.worldbank.org/en/country/ghana/overview#1>

⁹² Fitch (2021). Energy Sector Debt is a Key Risk to Ghana's Post-Pandemic Debt Trajectory.

<https://www.fitchratings.com/research/sovereigns/energy-sector-debt-is-key-risk-to-ghana-post-pandemic-debt-trajectory-03-03-2021> (Accessed on May 10, 2024).

4.2.3 Interest Rate and Exchange Rate Risks

Interest rate risks and exchange rate risks are two pronounced risks that come with external financing of any kind. Interest rates and exchange rates are imperative economic tools in the financial discourse. Interest rates define the surplus amount that a borrower must pay in addition to the principal borrowed (Alafif, 2023)⁹³. An increase in interest rates implies an increase in the surplus amount (the interest) on the principal amount. In the case of Ghana, interest rates risks materialise when undesirable alterations (often increment) occur in the interest rates of its existing energy sector debt, which may additionally affect the prospects of future external borrowing. If Ghana's high debt energy sector is unable to meet the demands of the new interest rates, this raises concern for the financial sustainability of the country's income and overall debt (Sarkodie, 2024).⁹⁴ Exchange rate risks on the other hand arise when countries lend financial assistance in foreign currencies (European Central Bank, 2010)⁹⁵. This means that the debts accrued of a country are calculated and repaid in foreign denominations. This type of risk affects countries like Ghana whose internal revenue is generated in a currency that is foreign to the currency borrowed from. This non-alignment in currencies between lender and borrower implies that an increase in the exchange rate may impact the overall debt owed (European Central Bank, 2010). Therefore, Ghana's domestic currency is exposed to the risk of devaluing against the foreign denomination as a result of unfavourable market conditions like inflation and low GDP will have detrimental repercussions on the borrower's capacity to pay off the increase in debt (European Central Bank, 2010). At the beginning of 2022, the value of the Ghana cedi to the U.S dollar incurred a depreciation by 55%, posing grave consequences on the country's capacity to import (International Trade Administration, 2022)⁹⁶. As of April 2024, this devaluation in the cedis has appreciated from 12.675 USD/GHS (in March 2024) to 13.04 USD/GHS (CEIC Data, 2024)⁹⁷. This also had a negative impact on the country's aggregate debt sustainability as the debt burden overpowered its internally generated income. Consequently, these risks may reduce Ghana's ability to arouse and stimulate investments in

⁹³ Alafif, A., H. (2023). Interest Rate and Some of its Applications. Journal of Applied Mathematics and Physics. Vol.11 No.6. <https://www.scirp.org/journal/paperinformation?paperid=125583>

⁹⁴ Sarkodie, O. A. (2024). Ghana's debt: the pros and cons of borrowing abroad versus at home. The Conversation. <https://theconversation.com/ghanas-debt-the-pros-and-cons-of-borrowing-abroad-versus-at-home-183660>

⁹⁵ European Central Bank (2010). Addressing Risks Associated with Foreign Currency Lending in Eu Member States. Financial Stability Review. https://www.ecb.europa.eu/pub/pdf/fsr/art/ecb.fsrart201006en_05.pdf

⁹⁶ International Trade Administration (2022). Ghana Currency Depreciation. <https://www.trade.gov/market-intelligence/ghana-currency-depreciation>

⁹⁷ CEIC Data (2024). Ghana Exchange Rate against USD. <https://www.ceicdata.com/en/indicator/ghana/exchange-rate-against-usd>

the near and future terms. The manifestation of such risks are more likely with bilateral financiers such as the USA and China, and unofficial for-profit investors like *Tullow Oil* and *Kosmos Energy Limited*.

4.2.4 Policy Conditionalities

Foreign public finance, albeit their beneficial and impactful characteristics, are not without the risk of interferences and conditionalities from donors (Sarkodie, 2024). Just like most public foreign aids, low-cost project loans, and grants, external donors may attach caveats and conditionalities to the assistance they provide recipient countries. Essentially, these policy conditionalities refer to the criteria and conditions that donors, creditors, and financiers formulate as part of financial arrangements and contracts with the respective recipient countries (Guillaumont et al, 2023)⁹⁸. Donors may use political or economic policy conditionalities, or a combination of both, to achieve policy amendments and reforms in the recipient country (Guillaumont et al, 2023). These conditionalities are often in conformity with the goals and beliefs of the donors and lenders. Whereas political policy conditions may include observation of human rights, democratic processes, rule of law, et cetera, economic conditions may also involve the execution of policies such as fiscal austerity measures, and monetary policy reforms, et cetera (Guillaumont et al, 2023). Policy conditions may prove effective in achieving political stability, socio-economic growth and development of recipient countries when implemented effectively and efficiently. For instance, the World Bank employed the use of energy sector reforms as a conditionality for financing electricity expansion and access projects in Ghana in the early 2000s (Pedersen, 2022). Nonetheless, in instances where such policy conditionalities do not favour or cohere with the values and principles of the recipient country, there is the risk of losing access to such external public financing. Moreover, political conditionalities tend to interfere with the interplay of internal affairs (social, economic, political, et cetera.) which may be perceived as threatening and undermining the sovereignty and autonomy of borrowing countries. Where such conditionalities involve oversight by international donors and institutions, this tends to compromise the domestic political autonomy of such recipient countries, which may serve donor interests and values over recipient needs. Again, bilateral donorship may be impacted by the change in government and priorities of lending countries. Specifically, if the former government of a lending country like the USA

⁹⁸ Guillaumont, P., Boussichas, M., & Dsouza, A. (2023). The Evolution of Aid Conditionality: A Review of The Literature of The Last Twenty Years. The EBA Working Paper Series. <https://eba.se/wp-content/uploads/2023/09/Bistandskonditionalitet-September-2023-webb.pdf>

prioritised the deployment and transition of renewable energy technologies in Ghana, there is the risk of a shift in the priorities of the succeeding government which may prioritise non-renewable energy or the development of another sector in the recipient country. This may consequently lead to alterations in pre-existing conditionalities and agreements for recipients of energy sector finance.

4.2.5 Bureaucratic Challenges and Execution Constraints

A notable characteristic of receiving financial assistance from external public sources for renewable energy transition involves the complex bureaucratic processes and protocols that form part of the standard practices of development finance institutions, foreign governments and multilateral organisations. While standard and mandatory, bureaucratic protocols involve complex intricacies such as lengthy administrative and contract approval processes, long project cycles, project review, prolonged durations for financial acquisition processes, et cetera, which ultimately may result in delayed project implementation and finalisation (Nee and Oppen, 2009). For renewable energy deployment, these procedures cause setbacks and impediments in the execution of initiatives which lead to stalled and untimely project delivery and higher aggregate expenditure. For Ghana's renewable energy sub-sector, these ambiguities and bureaucratic constraints as well as conflicting regulatory structure lower the urgency required in implementing renewable projects (U.S Department of State, 2023.)⁹⁹. The World Bank financing for renewable energy deployment, among others, is notable for undergoing strenuous and heavily bureaucratic procedures which take nothing short of at least 27 months before actual financial assistance reaches recipients (Gehan & Kenny, 2023)¹⁰⁰. This by extension means that most renewable energy projects are delayed as financial approval dates do not tally with the start of project implementation. Although some projects are eventually implemented, these delays do not reflect the urgency in meeting the renewable energy needs of such recipient countries. To illustrate, although the Ghana: Energy Development and Access Project (GEDAP) was approved on July 26, 2007, the project was closed in 2022 (World Bank, n.d.)¹⁰¹.

⁹⁹ United States Department of State. 2023 Investment Climate Statement: Ghana.

<https://www.state.gov/reports/2023-investment-climate-statements/ghana/> (Accessed on May 16, 2024)

¹⁰⁰ Gehan, Z. & Kenny, Z. (2023). If You Want Clients to Borrow from the World Bank for Net Zero Investments, Make It Easier. Center For Global Development. <https://www.cgdev.org/sites/default/files/if-you-want-clients-borrow-world-bank-net-zero-investments-make-it-easier.pdf>

¹⁰¹ World Bank. (n.d.). Ghana: Energy Development and Access Project. <https://projects.worldbank.org/en/projects-operations/project-detail/P074191>

4.3 Risks of Foreign Private Finance

Private climate finance has been a beneficial complement to foreign public finance, making up Ghana's overall foreign financing. Climate Policy Initiative (2023) finds that private investments in Ghana are hard to grasp and are not as substantial as support from public sources¹⁰². Between 2019 and 2020, Ghana's foreign private investments accounted for only 7% of private climate investments, which makes up 13% of the country's aggregate climate finance. Ghana has benefitted from a combination of financial support and investments from commercial financial institutions, corporations, institutional investors, and export credit agencies, et cetera, with equity and debt as the key financial instruments (Climate Policy Initiative, 2023). Notably, Ghana's energy sector benefits the most from investments and assistance from the private energy sector investors like *Tullow*, *Kosmos*, *Vitol*, *Quantum Group*, *Aker Energy*, et cetera, as compared to the other sectoral areas of the country (Climate Policy Initiative, 2023, Pedersen, 2022). Similar to external public financing, foreign private investments in Ghana's energy sector are accompanied by certain risks that threaten the country's sustainable transition to renewable energy. Both foreign public and private finance are saturated with similar risks such as debt burden and refinancing risks, interest rate and exchange rate risks. Nonetheless, there are some others that are peculiar to foreign private financing, which include the risk of profit maximisation, risk of investor preferences, ownership and control, and project viability risk.

4.3.1 Risk of Profit Maximization

Private investments are made with the underlying motive of achieving the goal of profits. Although project investments may be executed with the supplementary goal of achieving certain beneficial social outcomes, private donors perceive investments as business transactions, which implies that every project financed through foreign private finance is undertaken with the ulterior aim of maximising their yields and profits (Jacquet et al, 2022)¹⁰³. In Ghana, the energy sector which doubles as carbon intensive and also the highest emitter of greenhouse gases received the highest investments from foreign private financing in 2020

¹⁰² Climate Policy Initiative. (2023). Climate Finance in Ghana. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/climate-finance-in-ghana/>

¹⁰³ Jacquet, P., Jimenez, E., & Revoltella, D. (2022). The economic and social impact of private investments: results of a programme to generate useful results while building research capacity. *Journal of Development Effectiveness*, 14(1), 1–3. <https://doi.org/10.1080/19439342.2022.2042359>

(Climate Policy Initiative, 2023). Owing to the goal of profit maximisation, Ghana's energy sector faces the risk of private investors prioritising projects that have substantial returns and brief repayment windows, irrespective of whether it is mutually beneficial for its economy and financial sustainability. Additionally, there is the risk of discontinuity and negligence in instances where renewable energy projects are predicted to yield lower profits with little regard for their contribution to low carbon emissions.

4.3.2 Risk of Investor Priorities

Although foreign private finance is not explicitly linked to the risk of economic dependency, foreign private investments are highly dependent on prominent factors like the priorities and preferences of investors, their risk threshold at a given period, and the present market trends and conditions. Unlike foreign public finance that is often development-driven, private investors' decision to fund renewable energy projects is highly dependent on initiatives and projects that have the highest return on investment (Jacquet et al, 2022). *Tullow Oil* for instance may prioritize the exploration and development of the oil and gas sector over RE development in Ghana. Since these priorities, preferences and aversion to risk of investors are not constant and prone to alterations, the probability of an investor to shift financing preferences to other energy sector projects like non-renewable energy electricity generation, electricity distribution and access, or possibly to other sectors of the country are strong, given that the anticipated return on investments are high. Essentially, investors of foreign private finance may prioritise their interests and gains over that of the needs of recipient countries.

4.3.3 Project Ownership and Control

As established, international private donors seek to implement energy projects in Ghana that align with their priorities, with the primary goal of increasing their profits on project investments. Thus, it comes as no surprise that they often maintain a prominent level of ownership and control in the implementation and dispensation of energy sector initiatives and projects they fund, which often poses conflictual sentiments when local partnerships and initiatives are not empowered. Unlike foreign public finance where project implementation is overseen by the domestic structures, energy projects under foreign private finance involve a high-level involvement of private stakeholders in their execution (Asiedu & Esfahani, 2001)¹⁰⁴. These may include the transposition of foreign norms, implementation practices and

¹⁰⁴ Asiedu, E., & Esfahani, H. S. (2001). Ownership Structure in Foreign Direct Investment Projects. *The Review of Economics and Statistics*, 83(4), 647–662. <http://www.jstor.org/stable/3211760>

regulations, and high-level foreign oversight. This incoherence between the preferences of private investors and local community stakeholders of recipient countries tends to pose challenges for the overall durability and efficient implementation of energy projects. Moreover, the autonomous control over domestic projects by foreign private donors and investors in Ghana raises concerns of transparency, accountability, and openness over the various phases of project development and lifespan.

4.3.4 Viability Risk

Ghana's energy sector has attracted the most investment from foreign private actors. In addition to the goal of profit maximisation and investor preferences, the decision to invest in a country's energy sector is also influenced by the viability of the proposed project, and its favourability on the market (Jagun, 2020)¹⁰⁵. To achieve high return on investments, private investors conduct rigorous market assessment and evaluations aimed at combing out potential open and hidden risks associated with a specific project or initiative (Jagun, 2020). Unlike foreign public donors who may consider the long-term sustainability and environment implications and merits of powering renewable energy projects, private investors may withdraw and redirect their investments into more profitable non-renewable energy ventures in the case where the anticipated losses associated with a designated renewable energy project outweigh the potential gains. As Ghana's energy sector is intertwined with high debts and uncertainties, private investors may be discouraged from sponsoring energy sector projects altogether. For renewable energy deployment, Ghana's record in this quest remains less significant as compared to non-renewable sources, which may appear less appealing to private investors and obstruct the execution of renewable energy deployment in Ghana.

¹⁰⁵ Jagun, T., Z. (2020). Risks in feasibility and viability appraisal process for property development and the investment market in Nigeria.

CHAPTER 5: BALANCING AND MITIGATING RISKS TO GHANA'S FOREIGN FINANCING INFLOWS

5.2 Measures for mitigating risk to green finance inflows

Ghana's access to foreign green finance from both public and private sources in its quest to transition to a low carbon economy and RE technology is not devoid of risks. As identified, these risks are multifaceted and intertwined with complexities that threaten the holistic and integrated upscaling of RE in the country's energy generation mix. Albeit these risks, institutional hurdles and impediments have also been observed to undermine and reduce the stimulation of external investments and financial assistance in the RE sub-sector. Thus, Ghana's sustainable deployment of RE is not only impeded by external blocks and risks, but additionally by obstacles inherent in its public institutions. As Ghana seeks to implement institutional and bureaucratic reforms to address these hurdles, it is imperative to also address potential approaches and intervention strategies that can mitigate the risk of foreign green finance. In pursuit of facilitating the successful penetration of RE technologies and attaining a carbon-neutral economy for Ghana, this sub-chapter discusses the measures that may be employed for balancing the inflows of foreign finance. The mitigation strategies for both public foreign finance and private foreign finance are jointly addressed as the interventions cut across risks from both areas. The successful and effective RE inflows will therefore require a combination of these risk mitigation interventions.

5.2.1 Sovereign Guarantees

A viable alternative for reducing and balancing the risks associated with foreign green finance from public sources is sovereign guarantees. Sovereign guarantees in the RE domain refer to assurance provided by the government of a borrowing country to show commitment towards meeting debt repayment in case of non-payment breaches or RE project default and failures (IRENA, 2020)¹⁰⁶. As Ghana has incurred a high debt rate in its energy sector, foreign investors and donors may be reluctant to invest in the country's RE sub-sector due to concerns over inability to finance existing debts. Harnessing sovereign guarantees can serve as a mechanism for amplifying the credit reliability of Ghana in the realm of external and international financiers for the development of the RE sub-sector. This may positively impact loans received by reducing the interest rates as well offering beneficial payment conditions and arrangements (IRENA, 2020). For Ghana, borrowing locally has been observed to be more costly as

¹⁰⁶ IRENA (2020), Renewable energy finance: Sovereign guarantees (Renewable Energy Finance Brief 01, January 2020), International Renewable Energy Agency, Abu Dhabi

compared to lending from foreign sources. Sarkodie (2022) explains that due to elevated inflation and domestic loans not being concessional, local borrowing has higher costs for Ghana than external borrowing. Thus, Ghana can employ sovereign guarantees in RE financing to not only public foreign finance but also investments from external private entities for the execution of small, medium and extensive RE projects. The judicious and efficient execution of sovereign guarantees for RE investment inflows relies on the ability to execute effectiveness of domestic measures and favourable conditions. In this regard, the government of Ghana must institute well-defined protocols and procedures for sovereign guarantees directed towards financing for RE projects and initiatives. This would require rigorous and calculated evaluations to assess the anticipated impact of such projects, with a particular focus on nationally beneficial and substantially effective RE projects. Such evaluations must also assess the impact of sovereign guarantees on Ghana's debt sustainability. Moreover, this calls for strengthening existing legislations such as the Public Financial Management Law that govern the governance and dispensation of sovereign guarantees in the country in the bid to facilitate the sustainable transition to a low carbon economy.

5.2.2 Diversification of RE Financing Streams

As a key mitigating strategy for the inflows of foreign financing, Ghana must diversify its sources of financing for RE projects (Lekovic, 2018)¹⁰⁷. Ghana's external climate finance from its relevant donors like the World Bank, the African Development Bank, European Union, the USA, China, et cetera, focus on agriculture, forestry and other land use (AFOLU) with a meagre percentage allocated to RE projects. As the AFOLU and energy sector are the two most high carbon sectors of Ghana, a balanced funding allocation strategy must be utilized to approach this inequality in climate finance in the country. The private sector on the other hand is a viable alternative of financing for Ghana. In as much as 88 percent of private climate finance is disbursed for energy sector projects, however only 8 of total climate finance is derived from external private investors (Climate Policy Initiative, 2023). In the wake of this, Ghana must implement favourable conditions to increase and stimulate investments from foreign private sources. This would require implementing favourable investment conditions, maintaining political stability, addressing institutional hurdles such as excessive bureaucratic protocols, corruption, bribery and embezzlement, et cetera. Moreover, towards ensuring national control and ownership over the energy sector, the country must increase the RE sub-

¹⁰⁷ Lekovic, Miljan. (2018). Investment diversification as a strategy for reducing investment risk. *Ekonomski Horizonti*. 20. 169-184.

sector financing emanating from national domestic revenue. Diversification reduces the overreliance on these donors for RE financing which in turn mitigates the risk of dependency. This opens opportunities to meet the needs of Ghana's RE sub-sector priorities over the interests of foreign financiers. Nonetheless, diversification of foreign financing would require a healthy balanced mix of both foreign public and private financing so as to offset the risks associated with either alternative alone.

5.2.3 Currency Hedging

An important strategy for mitigating the risks linked to the inflow of foreign green finance is the effective adoption of currency hedging tools. Currency hedging instruments present potent opportunities for reducing the exchange rate risks by serving as insurances to provide protection against potential devaluation of currencies. As the global financial market is saturated with uncertainties and instabilities, exchange rates may increase thereby affecting actual cost of RE projects and Ghana's ability to repay loans borrowed for such initiatives. If Ghana borrowed in the U.S dollar, an increase in the exchange rate implies that the interest rate on the principal also appreciates. In order to balance such risks on both public and private foreign financing, Ghana may consider the lock-in exchange rate system where repayment agreement with external donors involve pre-defined exchange rate terms that is not affected by the fluctuations on the market. This presents security over interest rates as exchange rates are pre-established by both donor and recipient. Alternatively, Ghana may consider currency swaps and enter into agreements with foreign donors to conduct financial flows and transactions in another currency using pre-established exchange rates in order to offer security and minimize exposure to risks related to exchange rate (Becker & Fabbro, 2006)¹⁰⁸. Another hedging tool that can potentially mitigate currency-linked risks is cross-currency financing. Ghana may enter into financial contracts with donors and investors of RE financing by borrowing in several currencies including the cedi. In this regard, Ghana may structure its export revenue stream in the currencies it borrows in. For instance, if Ghana receives most of its exported cocoa revenue in euros, then it can consider borrowing RE financing in euros. This establishes default currency hedges in the event where the cedi depreciates since its export revenue and loan repayments are conducted using the euro. Moreover, Ghana can also increase its foreign currency reserves in order to mitigate exchange rate risks when the value of the local cedi reduces (Becker & Fabbro, 2006).

¹⁰⁸ Becker, C. & Fabbro, D. (2006). Limiting Foreign Exchange Exposure through Hedging: The Australian Experience. RDP 2006-09

Notwithstanding these hedging instruments, it is important to add that comprehensive negotiations between Ghana and its external RE donors, robust currency analysis and risk assessments are required in order to effectively utilize such currency related risk mitigation tools.

5.2.4 Capacity Building and Development

Capacity building and development is an essential foundation for sustainable transition to a low carbon economy and is thus an imperative strategy for moderating perceived risks associated with the inflows of RE financing. Ghana's ability to effectively attract and stimulate public and private foreign green finance largely depends on its human resource, skills, and institutional capacity which are relevant for the productive negotiation of contracts and conditions of RE financing. Capacity development is also crucial for the effective and sustainable execution of RE projects and initiatives (Hope, 2011)¹⁰⁹. As Ghana lacks the requisite skillset to competently manage most RE initiatives, this has necessitated the outsourcing of such projects and initiatives (U.S Department of State, 2023). The country has been exposed to risks like the over-dependence on foreign skillset, expertise and technology, diminished control over RE project implementation, increased cost of project execution, knowledge gap, among others. To mitigate such risks, Ghana must first create training and development programs aimed at increasing local capacity in RE technology, project management and execution (Hope, 2023). This may involve establishing RE education curricula and practical workshops in collaboration with relevant private, academic and government stakeholders in order to provide an all-rounded intervention and training experience across the various RE techniques and technologies. Again, the country must strengthen institutional reforms which address measures for promoting conducive investment conditions such as streamlined external investment penetration and foreign RE business establishment. Ghana's development of its institutional capabilities can facilitate efficient and productive RE project design, planning and execution expertise. This will amplify its credibility and RE project delivery thereby increasing its access to public and private green finance. Nonetheless, it is noteworthy that effective and sustainable development of institutional capacity in the country depends on the periodic oversight and assessment, tactical and long-term institutional training on professional ethics and codes of conduct, and strategic RE investment protocols and criteria, et cetera (Hope, 2023).

¹⁰⁹ Hope, Kempe. (2011). Investing in capacity development: Towards an implementation framework. Policy Studies. 32. 59-72. 10.1080/01442872.2010.529273.

5.2.5 Financial Sustainability

Among others, financial sustainability is an imperative medium- and long-term strategy that Ghana must take into consideration in its quest to transition to RE and a carbon neutral economy. Before external investors and donors provide loans for RE projects, they take into consideration factors that influence their decision to invest, the worth, and control over projects. Ghana is a functioning democracy that enjoys peace and stability, making it a preferred destination for foreign investment. Nonetheless, at present, Ghana's energy sector has incurred the highest debts amongst the various sectors in the country, which is gradually reducing its foreign investment desirability. Moreover, the International Monetary Fund has declared Ghana as highly susceptible to debt crisis. What this means for the country's energy sector is that foreign investors and donors may refrain from investing in RE technologies in the country. Moreover, investors will seek to ascertain high control and oversight over the implementation of RE projects in order to amplify the outcome and ensure successful execution and overall impact. Ghana's high energy sector debt increases the country's reliance on foreign green finance, which eventually will create high political and economic dependence on such aid and finance. Thus, to mitigate such risks, Ghana must seek to strengthen its financial sustainability in order to amplify its investment credibility and long-term economic and socio-political functionality. Firstly, the country must diversify its source of income from the energy sector by executing economically viable tariffs from RE projects at low-cost for utility consumers. The country's Public Utilities Regulatory Commission must strengthen and extend its existing renewable energy feed-in-tariff to cover a longer period so as to stimulate sustainable and attractive investments for power generation in the sub-sector (IEA, 2015)¹¹⁰. The government must explore fully transitioning its utility billing system from the conventional system to a digital and modern system in order to streamline and keep track of payments and revenue procurement. At the national level, Ghana must exploit the option of tapping into the global markets, increase the export of manufactured goods over raw materials, cultivate the culture of project continuity, as well as sustainable national expenditure strategies.

5.2.6 Transparency and Accountability

An intrinsic strategy for reducing the risks of foreign green finance is the optimal integration of transparency and accountability in the execution, governance and management of the RE sub-sector. Owing to the exorbitant debts incurred by the energy sector in the face of erratic power outages and load shedding in Ghana, it becomes difficult to decipher what energy sector

¹¹⁰ IEA (2015). Feed-In Tariff for Electricity Generated from Renewable Energy Sources.

financing is allocated for. In 2023, an investigation was launched against officials of the Electricity Company of Ghana regarding allegations of corruption (Ghana Web, 2023)¹¹¹. This has the potency of dissuading the interest of prospective investors and financier in the energy sector as accountability remains a persistent challenge for the managing authorities. This can contribute to viability risks where investors may be sceptical about the prospects of maximizing profits or effective RE project outcomes. Thus, towards mitigating such potential risks, Ghana must endeavour to promote transparency in its RE sub-sector. This may include the creation of an energy sector tracker website for easy access to information on public disclosure of RE projects, financial inflows and agreement, implementation timeline, outcome and impact. The government must also ensure that tender processes for RE projects and initiatives are conducted with high-level openness and fairness in order to strengthen potential investors confidence in the country's institutions. Such bidding procedures including relevant criteria, guidelines and results must be publicly advertised. Additionally, the energy sector must increase its engagement with external stakeholders through partnerships with foreign organizations, governments, and importantly the private sector. Open collaborations with the local grassroots from various communities in Ghana must be encouraged so as to build a sense of local ownership and strengthen local capacity and expertise in the RE sub-sector. In addition to integrity promotion, the energy sector can streamline and fortify transparency and accountability in its RE sub-sector regulation and management through the creation of an autonomous monitoring body charged with conducting regular impartial and unbiased auditing. Thus, decision making of such regulatory bodies must be devoid of external interferences in the bid to boost investor and donor trust as well protect the interest of the public.

¹¹¹ Ghana Web (2023), ECG, police, BoG and 5 other public institutions being 'grilled' by Special Prosecutor. https://www.ghanaweb.com/GhanaHomePage/NewsArchive/ECG-police-BoG-and-5-other-public-institutions-being-grilled-by-Special-Prosecutor-1797497#google_vignette

CHAPTER 6: CONCLUSION

6.1 Research findings and Conclusion

Using the dependency theory, the donor interest model and the recipient-needs model, this study assessed the complex dynamics of renewable energy financing in Ghana. Particularly, the study aimed at addressing the following research questions:

1. What are the political and economic interests of the World Bank and African Development Bank in prioritising the financing of Ghana's RE transition?
2. Do the World Bank and African Development Bank have political and economic interests in financing Ghana's non-renewable energy sub-sector?
3. What are the risks of foreign climate finance to Ghana's sustainable transition to RE?
4. How can the risks of foreign climate finance for Ghana's RE transition be mitigated?

Main Findings

- The World Bank has substantially financed more non-RE projects than RE in Ghana. There has also been a shift in the Bank's priorities from RE deployment to non-RE energy sources during the different political regimes of Ghana.
- The African Development Bank has financed more RE projects than non-RE projects. The study observed a shift in the Bank's financing priorities from non-RE development to RE deployment.
- China's interests in Ghana's energy sector lay within exploring the opportunities derived not only from its RE industry, but significantly in Ghana's non-RE sector.
- Institutional hurdles that impede the inflow of RE financing in Ghana include the absence of coordinated and effective accountability and transparency in project implementation, costing, and evaluation; corruption, bribery and embezzlement embedded in the institutional and administrative systems of the country; complex and multifaceted bureaucratic proceedings and administration; and unskilled labour force.
- This research has demonstrated that Ghana's RE transition is threatened by risks that impede the inflow of foreign green finance.
- The study finds that key mitigation strategies and interventions for reducing risks and facilitating the inflow of foreign green finance for a sustainable RE transition in Ghana include sovereign guarantees, diversification of RE financing, capacity building,

financial sustainability, transparency and accountability, and the implementation of currency hedging tools.

To answer the research questions, the study has shown that the political and economic interests of the World Bank's and the AfDB's financing in Ghana's energy sector lay within RE transition as well as in the non-RE sub-sector. However, the extent of their interests and financing priorities differ significantly. For the World Bank, financing priority has been given to Ghana's non-RE sector over the RE sector. However, this prioritization and investment in more non-RE initiatives and projects in Ghana's energy sector is attributed to the energy sector needs and preferences of the country towards addressing its longstanding electricity outage crisis. This additionally reveals Ghana's disposition towards exploiting its oil and gas industry at the expense of sustainable and resilient deployment of RE. This pattern of the Bank's financing in Ghana's energy sector shows the misalignment between the interests and priorities of the Bank in facilitating a just and inclusive RE transition, and the needs and priorities of Ghana's energy sector.

Unlike the World Bank, the AfDB's pattern of financing Ghana's energy sector has seen a shift from non-RE to RE development, which depicts a reprioritization of the Bank's interests. This increased financing for renewable energy initiatives aligns with the country's energy sector policies of phasing out coal and fossil powered energy sources. For other prominent financiers like China, its interests in providing energy sector finance to Ghana are backed by business motives, highlighting its prioritization of the non-RE. Although the prospects for China to increase its prominence in Ghana's and Africa's energy industry are promising, obstacles such as the lack of transparency and accountability in Chinese operations, have hindered the ability to effectively track foreign green finance and investments.

The research has shown that Ghana's sustainable RE development is endangered by risks emanating from foreign green finance and support. Included in these are debt burden and refinancing risks, interest rate and exchange rate risks, risk of policy conditionalities, risks of bureaucratic challenges and execution constraints, dependency risks, risk of profit maximisation, risk of investor priorities, project ownership and control, and viability risk. Additionally, these risks are exacerbated and enabled by institutional hurdles that impede the inflow of finance for Ghana's sustainable RE transition. Nonetheless, from the analysis, it is evident that towards addressing these pressing risks, Ghana can take advantage of mitigation strategies and interventions that have the potential to facilitate the inflow of foreign green

finance for a sustainable RE transition in Ghana. Among these are sovereign guarantees, diversification of renewable energy financing streams, capacity building and development, financial sustainability, transparency and accountability, and the implementation of currency hedging tools like lock-in exchange rate system, currency swaps, cross-currency financing and foreign currency reserves are imperative for reducing and balancing the risks associated with foreign green inflows in Ghana. The effective implementation of these mitigation strategies would require comprehensive analysis and risk assessments in order to effectively manage and limit the impact of the risks of foreign green finance.

Albeit the findings and observations of this research, it is imperative to recognize the constraints that may have affected the analysis and interpretation of the research findings. The study encountered limitations regarding access to, and availability of research data. The study relied on data and information gathered from the websites and databases of the Government of Ghana, the AfDB, the World Bank, China, International Energy Agency, IRENA, among others. However, there were inconsistencies, restrictions, and unavailability of information which may restrain the level and extent of interpretation of the study. The study therefore utilized information that was publicly accessible.

Additionally, the study focused on selected financiers and multilateral development institutions, which are the World Bank and the AfDB for assessing the interests of donors and foreign green finance in Ghana's RE sub-sector. This restriction in scope did not include an in-depth analysis of the other prominent financiers to Ghana's RE transition. Nonetheless, the selection of the World Bank for the study stemmed from its prestige as the largest development bank, global reach, development goals and prominence in Ghana's energy sector. On the other hand, the selection of the AfDB was derived from its strategic position as a regional bank for Africa, offering insights into Ghana's RE sector transition and the financial support, opportunities and regional assistance available to address Africa's sustainable development and energy sector solutions. China's analysis in the study depicted the role of other prominent and key financiers in Ghana's energy sector.

Although RE transition is at the forefront of the interests and priorities of the World Bank, the African Development Bank and China, the role of Ghana's non-renewable energy sub-sector in meeting its energy needs and gaps in this transition cannot be undermined or disregarded. So far, Ghana's RE transition is slow-paced, as the country gives priority to its non-RE sector. As it stands now, this goal of achieving a carbon neutral economy in Ghana, although far from

realization, is possible to attain. While in the short and medium term the prominence of the non-RE sub-sector will persist, a holistic and sustainable RE transition in Ghana must be strengthened and addressed as a long-term agenda. This will require a reassessment of the energy sector priorities in Ghana with tangible and practical focus on RE transition, not just in theory.

As established, a resilient RE transition requires significant investment and financing. Since Ghana's internal budget alone remains insufficient to power this ambitious transition, the need to stimulate investments and support from external donors has increasingly become imperative. Throughout the course of Ghana's energy sector development, foreign green finance has significantly contributed towards facilitating RE and non-RE deployment. However, the effective utilization of energy sector financing has often been impeded by bureaucratic and administrative obstacles in Ghana, which also persistently deteriorate the effective management of completed RE projects. In the face of such complexities, it is irrefutable that the interplay of foreign RE financing in Ghana can be a double-edged sword, intertwined with a myriad of risks that have the potential of jeopardizing the effective penetration of, and development of RE in Ghana. On the other hand, foreign green finance presents positive prospects for Ghana's energy sector, some of which are access to substantial RE financing, transfer of RE technology, capacity and skill development, stimulation of economic growth through RE development. Additionally, such external RE financing serves as a gateway for international cooperation and partnership.

While foreign green finance is necessary to ensure this transition, policy makers must utilize a well-rounded approach to offset perceived and hidden risks and implications. This can be attained through the proper allocation and management of green finance by the Ministry of Finance and the Ministry of Energy. Towards this end, Ghanaian policy makers must devise and establish clear-cut transparent and uniform green finance policies targeting the distribution, regulation and governance of financing from both national and external sources. In order for such policies to thrive, the government must facilitate and ensure the effective regulation of robust investment environment and conditions that attract and safeguard investors. Moreover, through effective monitoring and oversight of national institutions and departments, Ghana can address administrative barriers that impede the inflow and distribution of RE finance. The government must streamline and increase its access to foreign green finance with a particular focus on supporting local private ventures, and independent micro and medium scale businesses in securing external support for RE projects. Ghana can harness the benefits of

facilitating effective public-private partnerships at the national and international domain to promote the interchange of expertise and knowledge for RE development in Ghana. This can further be strengthened through collaborations with relevant and prominent stakeholders at the local and community level, through non-governmental and non-profit organizations, research think tanks, et cetera to ensure inclusive and holistic efforts in the drive for resilient RE transition in Ghana.

In conclusion, this study offers insights into the geopolitical dynamics of RE financing in Ghana, by accentuating the importance of coordinating and utilizing a comprehensive strategy to enhance the effectiveness of foreign green finance. Policy makers and stakeholders in Ghana's energy sector can strategically navigate the intricacies of the energy sector industry to enhance resilience and the long-term development of RE deployment in Ghana. In the terrain of this discourse, prospective studies should focus on exploring the economic and political interests of a wider range of strategic RE financiers in Ghana. Particular attention should be given to the interplay of the interests of international governments and global powers like China versus the United States, as well as the interests of regional blocs like the West versus the Eastern Bloc in financing Ghana's RE transition.

BIBLIOGRAPHY

Ablo, A. D., & Asamoah, V. K. (2018). Local participation, institutions and land acquisition for energy infrastructure: The case of the Atuabo gas project in Ghana. *Energy Research & Social Science*, 41, 191-198. <https://doi.org/10.1016/j.erss.2018.03.022>.

African Development Bank Group (n.d.). Interconecxion Project. <https://projectsportal.afdb.org/dataportal/VProject/show/P-GH-F00-002> (accessed on April 01, 2024)

African Development Bank Group (n.d.). Multinational- 330 KV Ghana – Burkina – Mali Interconnection Project Study. <https://projectsportal.afdb.org/dataportal/VProject/show/P-Z1-FA0-172> (accessed on April 02, 2024).

African Development Bank Group (n.d.). Multinational - Ghana-Togo-Benin 330 kV electricity interconnection project. <https://projectsportal.afdb.org/dataportal/VProject/show/P-Z1-F00-034> (accessed on April 02, 2024).

African Development Bank Group (1997). Ghana: The Electricity Network Reinforcement and Extension to Brong Ahafo Region. <https://www.afdb.org/en/documents/document/ghana-the-electricity-network-reinforcement-and-extension-to-brong-ahafo-region-9627> (accessed on April 01, 2024)

African Development Bank Group (n.d.). Ghana - Power System Reinforcement Project. <https://projectsportal.afdb.org/dataportal/VProject/show/P-GH-F00-003> (accessed on April 01, 2024)

African Development Bank Group (n.d.). Objectives. <https://www.afdb.org/en/about-us/mission-strategy/objectives> (accessed on May 1, 2024)

African Development Bank Group. (n.d.) The High 5s For Transforming Africa. <https://www.afdb.org/en/high5s> (accessed on May 1, 2024)

Agrawal, A. (2012). Risk Mitigation Strategies for Renewable Energy Project Financing. *Strategic Planning for Energy and the Environment*. 32(2), 9-20

African Development Bank Group. (2019). Light Up and Power Africa. https://www.afdb.org/sites/default/files/2019/07/05/high_5_light_up_africa.pdf

African Development Bank Group. (n.d.). Ghana- Total Commitment. Data Portal. <https://projectsportal.afdb.org/dataportal/VTopCountry/show/GH> (accessed on April 02, 2024).

Alafif, A., H. (2023). Interest Rate and Some of its Applications. *Journal of Applied Mathematics and Physics*. Vol.11 No.6. <https://www.scirp.org/journal/paperinformation?paperid=125583>

Asiedu, E., & Esfahani, H. S. (2001). Ownership Structure in Foreign Direct Investment Projects. *The Review of Economics and Statistics*, 83(4), 647–662. <http://www.jstor.org/stable/3211760>

Athanasopoulou, M., Consiglio, A., Erce, A., Gavilan, A., Moshammer, E., & Zenios, A. S. (2018). Risk management for sovereign financing within a debt sustainability framework. Working Paper Series 31 European Stability Mechanism Luxembourg.

Bailey, J., W., Court, B., Lamb, F., Simpson, G., Rose, P. (2000). Taking a Calculated Risk. Oilfield Review.
https://www.researchgate.net/publication/287202442_Taking_a_Calculated_Risk

Bawakyillenuo, S. (2017). The Political Economy of Renewable Energy Investment in Ghana. IDS Bulletin, 48(5-6), 1-14. <https://doi.org/10.19088/1968-2017.167>.

Bandyopadhyay, S., & Wall, H.J., (2006). The Determinants of Aid in the Post-Cold War Era, Federal Reserve Bank of St. Louis Working Paper 2006-021.
<https://doi.org/10.20955/wp.2006.021>

Becker, C. & Fabbro, D. (2006). Limiting Foreign Exchange Exposure through Hedging: The Australian Experience. RDP 2006-09
<https://www.rba.gov.au/publications/rdp/2006/2006-09/hedging-instruments.html>

Bilotta, N., & Colantoni, L. (2018). Financing Energy Access in Sub-Saharan Africa. Istituto Affari Internazionali (IAI). <http://www.jstor.org/stable/resrep19690>

Brew-Hammond, Abeeku (1996), The electricity supply industry in Ghana: issues and priorities, in: Africa Development/Afrique et Développement, Vol. 21, No. 1, pp. 81-98.

Botchway, Francis (2000), The state, governance and the energy industry in Ghana, in: Verfassung und Recht in Übersee/Law and Politics in Africa, Asia and Latin America, Vol. 33, No. 2, pp. 176-211.

Bower, E. (2022). The Guardian. African Countries Urge Rich Nations to Honour \$100bn Climate Finance Pledge. <https://tinyurl.com/yc87bfs4>

Care (2020). Climate Finance Adaptation Study Report Ghana.
<https://careclimatechange.org/wp-content/uploads/2021/01/Ghana-Climate-Adaptation-Finance-Tracking.pdf>

CEIC Data (2024). Ghana Exchange Rate against USD.
<https://www.ceicdata.com/en/indicator/ghana/exchange-rate-against-usd>

Climate Policy Initiative. (2023). Climate Finance in Ghana. Climate Policy Initiative.
<https://www.climatepolicyinitiative.org/publication/climate-finance-in-ghana/>

Climate Policy Initiative. (2022). Landscape of Climate Finance in Africa.

Das, U. S., M. A. Oliva, and T. Tsuda. 2012. Sovereign Risk: A Macro-Financial Perspective. ADBI Working Paper 383. Tokyo: Asian Development Bank Institute. Available: <http://www.adbi.org/working-paper/2012/10/02/5241.sovereign.risk.macrofinancial.perspective/>

Donastorg A., Renukappa S., & Suresh S. (2017). Financing Renewable Energy Projects in Developing Countries: A Critical Review. 2nd International Conference on

Green Energy Technology. IOP Conf. Series: Earth and Environmental Science 83
<https://iopscience.iop.org/article/10.1088/1755-1315/83/1/012012/pdf>

Darko, Deborah, Michael Kpessa-Whyte, Emmanuel Obuobie, Pius Siakwah, Obodai Torto, and Dzodzi Tsikata. (2019), The context and politics of decision making on large dams in Ghana: an overview, in: Future DAMS Working Paper 002, Manchester: The University of Manchester.

Edjekumhene, Ishmael and Navroz Dubash (2002), Ghana: Achieving public benefits by default, in: N. Dubash and S. Rajan (eds.), Power politics: Equity and environment in electricity reform, Washington DC: World Resources Institute, pp. 117-138.

European Central Bank (2010). Addressing Risks Associated with Foreign Currency Lending in Eu Member States. Financial Stability Review.
https://www.ecb.europa.eu/pub/pdf/fsr/art/ecb.fsrart201006en_05.pdf

Fitch (2021). Energy Sector Debt is a Key Risk to Ghana's Post-Pandemic Debt Trajectory. <https://www.fitchratings.com/research/sovereigns/energy-sector-debt-is-key-risk-to-ghana-post-pandemic-debt-trajectory-03-03-2021> (Accessed on May 10, 2024).

Gehan, Z. & Kenny, Z. (2023). If You Want Clients to Borrow from the World Bank for Net Zero Investments, Make It Easier. Center For Global Development.
<https://www.cgdev.org/sites/default/files/if-you-want-clients-borrow-world-bank-net-zero-investments-make-it-easier.pdf>

Ghana Ministry of Energy (2019). Ghana Renewable Energy Master Plan.
<https://faolex.fao.org/docs/pdf/gha208774.pdf>

Ghana Web (2023), ECG, police, BoG and 5 other public institutions being 'grilled' by Special Prosecutor. https://www.ghanaweb.com/GhanaHomePage/NewsArchive/ECG-police-BoG-and-5-other-public-institutions-being-lsquo-grilled-rsquo-by-Special-Prosecutor-1797497#google_vignette

Global Data. (2022). Ghana Renewable Energy Policy Handbook.

Guillaumont, P., Boussichas, M., & Dsouza, A. (2023). The Evolution of Aid Conditionality: A Review of The Literature of The Last Twenty Years. The EBA Working Paper Series. <https://eba.se/wp-content/uploads/2023/09/Bistandskonditionalitet-September-2023-webb.pdf>

Hannam, Phillip Matthew (2016), Contesting authority: China and the new landscape of power sector governance in the developing world, online: (Accessed: 20 April 2024).

Hope, Kempe. (2011). Investing in capacity development: Towards an implementation framework. Policy Studies. 32. 59-72. 10.1080/01442872.2010.529273.

IEA (2015). Feed-In Tariff for Electricity Generated from Renewable Energy Sources. <https://www.iea.org/policies/5645-feed-in-tariff-for-electricity-generated-from-renewable-energy-sources> <https://www.iea.org/policies/5645-feed-in-tariff-for-electricity-generated-from-renewable-energy-sources>

IEA (2016). Boosting the Power Sector in Sub-Saharan Africa. China's Involvement. IEA Publications.
https://www.lerenovaveis.org/contents/lerpublication/iea_2016_ago_boosting-the-power-sector-in-sub-saharan-africa--chinas-involvement.pdf

IFC (2012), Kosmos Energy Finance International, online: (Accessed: 20 April 2024).

IMF (2024). 2023 Article IV Consultation, First Review Under the Arrangement Under the Extended Credit Facility, Request for Modification of Performance Criteria, And Financing Assurances Review—Press Release; Staff Report; Staff Supplement; And Statement by The Executive Director for Ghana.

International Trade Administration (2022). Ghana Currency Depreciation.
<https://www.trade.gov/market-intelligence/ghana-currency-depreciation>

IRENA and CPI (2023), Global landscape of renewable energy finance, 2023, International Renewable Energy Agency, Abu Dhabi.

IRENA (2020), *Renewable energy finance: Sovereign guarantees*. (Renewable Energy Finance Brief 01, January 2020), International Renewable Energy Agency, Abu Dhabi

Jacquet, P., Jimenez, E., & Revoltella, D. (2022). The economic and social impact of private investments: results of a programme to generate useful results while building research capacity. *Journal of Development Effectiveness*, 14(1), 1–3.
<https://doi.org/10.1080/19439342.2022.2042359>

Jagun, T., Z. (2020). Risks in feasibility and viability appraisal process for property development and the investment market in Nigeria.
https://www.researchgate.net/publication/340895918_Risks_in_feasibility_and_viability_appraisal_process_for_property_development_and_the_investment_market_in_Nigeria/citations

Kapika, Joseph and Anton Eberhard (2013), Power-sector reform and regulation in Africa: lessons from Kenya, Tanzania, Uganda, Zambia, Namibia and Ghana, Pretoria: HSRC Press.

Kyoto Protocol to the United Nations Framework Convention on Climate Change. (1997). United Nations Framework Convention on Climate Change
<https://unfccc.int/cop3/resource/docs/cop3/protocol.pdf>

Lekovic, Miljan. (2018). Investment diversification as a strategy for reducing investment risk. *Ekonomski Horizonti*. 20. 169-184.

Miescher, Stephan and Dzodzi Tsikata (2009), Hydro-Power and The Promise of Modernity and Development in Ghana: Comparing the Akosombo and Bui Dam Projects, in: *Ghana Studies*, Vol. 12, No.1, pp. 15-53.

Noer, Thomas (2007), The New Frontier and African Neutralism: Kennedy, Nkrumah, and the Volta River Project, in: *Diplomatic History*, Vol. 8, No. 1, pp. 61-79.

Ola, D. (2016). BXC connects 20MW solar plant to Ghana's national grid.
<https://www.pv-tech.org/new-solar-farm-launches-20mw-into-ghanas-national-grid/>

Olanrewaju, O. (2019). The Role of Conditionalities in Renewable Energy Financing in Africa. *Journal of Sustainable Development*, 12(3), 1-13.
<https://doi.org/10.5539/jsd.v12n3p1>

Owusu-Manu, D. G., Mankata, L. M., Debrah, C., Edwards, D. J., & Martek, I. (2021). Mechanisms and challenges in financing renewable energy projects in sub-Saharan Africa: A Ghanaian perspective (Version 1). Deakin University.
<https://hdl.handle.net/10536/DRO/DU:30148641>

Owusu, P. A., Asumadu-Sarkodie, S., & Dubey, S. (2016). A review of renewable energy sources, sustainability issues and climate change mitigation. *Cogent Engineering*, 3(1). <https://doi.org/10.1080/23311916.2016.1167990>

Paris Agreement. (2015). United Nations Environment Programme
<https://wedocs.unep.org/handle/20.500.11822/20830>

Pedersen, R., H. (2022). Towards A Political Economy of Renewable Energy in Ghana: A Review. MIASA Working Paper No. 2022(4)

Power Africa (2016), Ghana: Power Africa Fact Sheet, online: (Accessed: 20 April 2024)

Prebisch, R. (1950). *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.

Raymond A. Atuguba, Francis Xavier Dery Tuokuu. Ghana's renewable energy agenda: Legislative drafting in search of policy paralysis, *Energy Research & Social Science*, Volume 64, 2020, 101453, ISSN 2214-6296, <https://doi.org/10.1016/j.erss.2020.101453>.

Ridgwell, H. (2021). VOA News. COP26: African Leaders Call on Rich Nations to Meet \$100 Billion Pledge. <https://tinyurl.com/48fdztc9>

Sarkodie, O. A. (2024). Ghana's debt: the pros and cons of borrowing abroad versus at home. *The Conversation*. <https://theconversation.com/ghanas-debt-the-pros-and-cons-of-borrowing-abroad-versus-at-home-183660>

Shen, W. (2020). China's role in Africa's energy transition: A critical review of its intensity, institutions, and impacts. *Energy Research & Social Science*, 68, 101578. <https://doi.org/10.1016/j.erss.2020.101578>

Tsang, B., Schäpe, B. & Hackbarth, A. (2023). Follow the Money Chinese climate-related finance to the Global South. E3G Briefing Paper. <https://www.e3g.org/wp-content/uploads/E3G-Briefing-Follow-the-Money-Chinese-climate-related-finance-to-the-Global-South.pdf>

Tsikata, Dzodzi (2006), *Living in The Shadow of The Large Dams: Long Term Responses of Downstream and Lakeside Communities of Ghana's Volta River Project*, Boston: Brill.

UNDP. (2020). Ghana Peace Brief.
https://www.undp.org/sites/g/files/zskgke326/files/migration/gh/UNDP_Ghana_Peace_Brief_2022.docx.pdf

UNDP (2021). Derisking Renewable Energy Investment.
<https://www.undp.org/publications/derisking-renewable-energy-investment>

United Nations Development Programme (UNDP) (n.d.). About Ghana. [online] UNDP in Ghana. Available at: <https://www.gh.undp.org/content/ghana/en/home/countryinfo.html#:~:text=A%20well%2Dadministered%20country%20by>

United States Department of State. 2023 Investment Climate Statement: Ghana.
<https://www.state.gov/reports/2023-investment-climate-statements/ghana/> (Accessed on May 16, 2024)

USAID (2017), Power Africa: A 2017 Update. Fact Sheet, online: (Accessed: 20 April 2024).

Wallerstein, I. (1974). *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press

Weiler, F., & Sanubi, F. A. (2019). Development and Climate Aid to Africa: Comparing Aid Allocation Models for Different Aid Flows. *Africa Spectrum*, 54(3), 244-2671

World Bank. (n.d.). Ghana: Energy Development and Access Project.
<https://projects.worldbank.org/en/projects-operations/project-detail/P074191>

World Bank (n.d.). Who We Are. <https://www.worldbank.org/en/who-we-are#:~:text=The%20World%20Bank%20Group%20is%20one%20of%20the%20world's%20largest,prosperity%2C%20and%20promoting%20sustainable%20development.>

World Bank (n.d.). World Bank Group and the 2030 Agenda
<https://www.worldbank.org/en/programs/sdgs-2030-agenda#1>

World Bank (n.d.). Just Transition for All: The World Bank Group's Support to Countries Transitioning Away from Coal.
<https://www.worldbank.org/en/topic/extractiveindustries/justtransition> (Accessed on April 27, 2024)

World Bank. (2016). Sustainable Development Goal on Energy (SDG7) and the World Bank Group. <https://www.worldbank.org/en/topic/energy/brief/sustainable-development-goal-on-energy-sdg7-and-the-world-bank-group> (Accessed on April 27, 2024).

World Bank (n.d.). Volta Expansion Project. <https://projects.worldbank.org/en/projects-operations/project-detail/P000836> (accessed on April 02,2024)

World Bank (n.d.). Projects. <https://projects.worldbank.org/en/projects-operations/projects-list?os=0> (accessed on April 02, 2024)

World Bank. (2024). Ghana Overview: Development news, research, data.
<https://www.worldbank.org/en/country/ghana/overview#1>

World Bank (2020), Implementation Completion and Results Report on An Ida Guarantee in The Amount of US\$500 Million And an IBRD Enclave Guarantee in The

Amount of US\$200 Million For the Republic of Ghana in Support of The Sankofa Gas Project, online: (Accessed: 20 April 2024).

APPENDIX

TABLES

Table 1: Ghana's Energy Sector Projects by Regime Type from The First to The Fourth Republic-World Bank Financing (World Bank, n.d.)

Period	Type of Regime	Projects	Type
First Republic (1960-1966)	Democratic	Volta Power Project	RE (Hydro)
National Liberation Council (1966-1969)	Military	Volta Expansion Project, Electricity Expansion Project	RE (Hydro), Expansion
Second Republic (1969-1972)	Democratic	Power Distribution Project	Power Access
National Redemption Council (1972-1975)	Military	-	-
Supreme Military Council (1975- 1979)	Military	Kpong Hydroelectric Project, Power project (03)	RE (Hydro), Power Access
Third Republic (1979-1981)	Democratic	-	-
Provisional National Defense Council (1981-1992)	Military	Power Project (06), Northern Grid Extension, Power Project (05), Petroleum Refining and Distribution Project, Power Project (07), Petroleum Refinery Rehabilitation and Technical Assistance Project, Petroleum - Energy Project	Sector Dev, Diesel, Power Access (1), Petroleum (3) Distribution
Fourth Republic (1992-Present)	Democratic	Solar PV Systems to Increase Access to Electricity Services in	Energy sector-wide recovery, Energy sector financial

		Ghana. Ghana: Energy Development and Access Project, Ghana Rural Energy Access, Thermal Power Project, National Electrification Project, Ghana Energy Sector Recovery Program, First Resilient Recovery Development Policy Financing, Ghana Energy Sector Transformation Initiative Project, Ghana Sankofa Gas Project, Additional Financing for Energy Development and Access Project, Additional Financing for Ghana Oil and Gas Capacity Building Project, Additional Financing for GEDAP, Gas and Oil Capacity Building Project, One Child one Solar Light	discipline, Natural Gas (3), Increased RE capacity, Renewables (Wind, Solar) Oil & Gas Sector Renewable (Solar PV) Renewables (Solar) Energy Access, Operational Efficiency, Renewable (Solar, Wind) Renewable (Solar) Thermal Transmission & Distribution
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Table 2: Ghana's Energy Sector Projects by Regime Type from The First to The Fourth Republic- AfDB Financing (AfDB, n.d.)

Period	Type of Regime	Projects	Type
First Republic (1960-1966)	Democratic	N/A	N/A
National Liberation Council (1966-1969)	Military	N/A	N/A
Second Republic (1969-1972)	Democratic	N/A	N/A
National Redemption Council (1972-1975)	Military	N/A	N/A
Supreme Military Council (1975- 1979)	Military	Interconnexion Project	Access
Third Republic (1979-1981)	Democratic	N/A	N/A
Provisional National Defense Council (1981-1992)	Military	Brong Ahafo Electricity Network	Non-Renewable
Fourth Republic (1992-Present)	Democratic	Ghana - Power System Reinforcement Project, Ghana Mini Grid and Solar PV Net Metering, Ghana Electricity Distribution System Reinforcement and Extension Project, Ghana Takoradi T2 Thermal Power Plant Expansion Project	RE (Solar) Renewable (Solar) Thermal Access/ Non-renewable